2007 Virginia Polytechnic Inst. & State University and Virginia State University Combined Research and Extension Annual Report

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I. Report Overview

1. Executive Summary

Virginia Cooperative Extension (VCE), a partnership between Virginia Polytechnic Institute and State University (VT) and Virginia State University (VSU), the Virginia Agricultural Experiment Station (VAES) and the Virginia State University Agricultural Research Station (VSUARS), enables people to improve their lives through research and education using scientific knowledge focused on the issues and needs of the citizens of Virginia. Recognizing that knowledge is power, VCE serves people where they live and work. Audiences are involved in designing, implementing, and evaluating needs-driven programs. VCE is a dynamic organization which stimulates positive personal and societal change leading to more productive lives, families, farms, and forests, as well as a better environment in urban and rural communities.

VCE's GOALS are to: 1) develop and transfer new knowledge in applied and basic life sciences, 2) perform relevant, objective, and timely research, 3) improve the quality of life for communities and citizens in the Commonwealth, 4) use a systems approach to programming, with task-oriented work teams that respond to the needs of individuals, groups, and organizations, 5) work with at-risk, underserved, and underrepresented audiences who need specialized attention, 6) fully integrate a culturally diverse paid and volunteer staff in planning, implementing, and evaluating programs, and 7) recruit and collaborate with public and private partners to better utilize resources, heighten impact, and reach a more diverse audience.

PLANNING AND REPORTING: VAES, VSUARS, and VCE address a broad range of problems and issues facing citizens of Virginia through focused research and educational programming. This is accomplished and reported in VAES through the Current Research Information System (CRIS) and the College of Agricultural and Life Sciences planning and reporting system (eFARS). This system used by VT and VSU faculty, includes annual program plans and reports focused on faculty goals, programs, outcomes, outputs and other data. This system also provides more accurate FTEs, contacts, outputs, and outcomes for each planned program than previous efforts. The foundation for research and Extension programs are built on identification of strategic issues through situation analysis, accomplished with the help of local advisory groups including Extension Leadership Councils. Situation analysis is a process of collaboratively determining what problems exist at local, regional, and state levels, and then deciding which ones are issues of major public concern. This analysis becomes the background and rationale for deciding which problems and issues will be addressed and reported on by VAES, VSUARS, and VCE .

VAES, VSUARS, AND VCE GOALS: Strategic goals form the foundation for research and educational program development. Goals are determined with the involvement of advisory groups. This year's goal areas included: 1) agricultural and environmental sustainability, 2) food, nutrition, and health, 3) biodesign and bioprocessing, 4) the green industry, 5) infectious diseases, and 6) community viability. The VSUARS in particular provides knowledge and technology to small-scale and limited-resource farmers and rural communities to enable them to produce abundant and safe food, while enhancing their economic well-being and quality of life. The primary research goal overall for Virginia is to develop relevant basic and applied research data to form the basis for Extension programming. A wide range of long and short term research projects are undertaken to provide a continuous flow of new or more fully developed knowledge to provide science-based information to enhance the quality of life for citizens. The overall education goal is to bring about change in people's knowledge, understanding, abilities, or behavior related to an issue and/or broader changes in economic, environmental, or social conditions. Progress towards these goals is recorded by planned program at the individual and team levels.

REPORTING REQUIREMENTS: All Extension faculty (agents, specialists, and administrators) and program assistants submit individual program reports. Also, county/city employees supervised by VCE and conducting Extension programs submit annual program reports. Summary reports are developed from the individual reports. All research faculty are required to propose peer reviewed Experiment Station projects submitted to USDA/CSREES, and entered into CRIS. Researchers prepare annual progress and termination reports reviewed by the VAES director before being submitted to CRIS. In addition, all research and Extension faculty are required to submit an annual report through eFARS. This locally developed system documents teaching, research, and Extension accomplishments and impacts for individual, unit, college, and organizational review. Updates to eFARS in 2007 better aligned planning and reporting with the ten planned programs presented in this report.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	303.1	30.0	220.5	7.1
Actual	303.3	21.0	220.5	7.1

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Combined External and Internal University External Non-University Panel
- Expert Peer Review

2. Brief Explanation

Review Process for Research

Virginia Agricultural Experiment Station

Rationale and Review Committee Structure - Research under the Hatch, McIntire-Stennis, and Animal Health and Disease Acts is conducted in three colleges that constitute the Virginia Agricultural Experiment Station (VAES):

1. College of Agriculture and Life Sciences,

2. College of Natural Resources, and

3. Virginia-Maryland Regional College of Veterinary Medicine.

For each VAES project proposal submitted, the assistant or associate VAES director in the project leader's college chairs the review (hereafter referred to as the chair). The chair selects the project review committee consisting of three or more members proficient in the subject of the proposed project. They may be chosen from outside the university if recommended by the department/unit head or deemed appropriate by the chair. Faculty from other units within the university may be eligible for VAES support. This research is reviewed by this policy, must fit within the mission of VAES, and is approved by the director. The VAES director or College of Agriculture and Life Sciences assistant director or associate director chairs the project review committee.

Proposal Development - The project leader prepares the proposal as specified in Essentials of a Project Proposal in the Administrative Manual for the Hatch (Experiment Station) Act as Amended, the Administrative Manual for the McIntire-Stennis Cooperative Forestry Program, and the Administrative Manual for the Continuing Animal Health and Disease Research Program (1992), Appendix F. Early in the new-project development process, the project leader is strongly encouraged to initiate a subject search using the USDA/CSREES Current Research Information System (CRIS).

The proposed research project should be reviewed by a statistician to assure the experimental design and statistical analyses are adequate. The project leader may meet with a member of the Statistics Consulting Center or the department/unit head may designate someone with statistical expertise to serve as a departmental reviewer. The project leader then submits the proposal to his/her department/unit head for peer review in accordance with departmental procedures. If the research involves animals, human subjects, or recombinant DNA, the project leader is responsible for submitting the required protocol forms to the appropriate university review committee(s). Proposals are not forwarded to USDA/CSREES without required approvals.

Proposal Submission and Review Procedures - The department/unit head transmits the departmentally approved project proposal to the chair of the project review committee for that college with the following items transmitted to the chair electronically: 1.) Four copies of the proposal (if not transmitted electronically), 2.) Four copies of the project leader's vita [2-page maximum] (if not transmitted electronically), 3.) The Project Certification Form, 4.) A Research Project Review Form, 5.) Verification of statistical review, and 6.) List of three or more suggested peer reviewers. The chair selects reviewers and distributes copies of the proposal to the Project Review Committee, which returns the Project Review Forms and comments to the chair by a specified date (after at least three weeks).

Proposal selection criteria include: 1.) proposed research relevance to the goals of the department and college, the needs of the people the research would serve, and the priorities established by task forces, work groups, or commodity research committees, 2.) objectives and procedures are clearly stated, 3.)the proposed duration is realistic for the proposed research, 4.) the appropriate or desirable individuals are cooperating on this project, 5.) the project lists impacts to Virginia (and elsewhere) or anticipated economic importance, and 6.) the project leader's vita indicate the level of competence required for the proposed research.

Each reviewer recommends the proposal be: 1.) approved with no changes, 2.) approved with minor changes, 3.) revised and resubmitted, or 4.) rejected.

The chair convenes the committee, the project leader, and the department head to review the proposal. The chair forwards reviewers' comments to the project leader and department head prior to the oral review. The oral review may be omitted for revised/replacement projects, at the discretion of the chair, if a majority of the review forms are checked by the reviewers as "approved with no changes" or "approved with minor changes." If an oral review is not conducted, the chair provides a written summary of the review committee comments to the project leader with a copy to the department/unit head and the review committee. An oral review is required for a project leader’s initial VAES Project.

Faculty located at off-campus Agricultural Research and Extension Centers (ARECs) submit proposals to the center director who contacts the appropriate department head on campus regarding departmental policy for securing a peer review before the proposal is sent to VAES for review. The center director forwards the proposal and departmental review, if applicable, to the VAES director, who serves as chair. The chair forwards the proposal to the review committee and the subject-matter department head, who is invited to attend the oral review.

Final Submission - The project leader complies with the recommendations of the Project Review Committee and submits the revised proposal to the department/unit head, accompanied by a letter delineating the changes made in response to the recommendations of the reviewers and/or a rebuttal for any recommendations, which the Project Leader does not accept. The project leader enters CRIS Forms AD-416 and AD-417 on the CRIS website -

The chair signs Form AD-416 and transmits the above items to the VAES director accompanied by a letter listing names of the reviewers and date of the oral review (if applicable). For McIntire-Stennis proposals, the Administrative-Technical Representative (A-TR) must sign Form AD-416, certifying the proposal complies with the purposes of the McIntire-Stennis Act.

The VAES director meets with the chair, department head, and project leader if there are any questions or concerns. When the project leader, the department/unit head, the chair of the project review committee, and the director agree the proposed project should be accepted, the director approves it, assigns a project number, enters Form CSREES-2008, and transmits the proposal, CRIS Forms AD-416, AD-417, and CSREES-2008 electronically to CRIS/CSREES/USDA. The CSREES project reviewer may contact the director, assistant/associate director, or project leader with questions or for additional information. If a proposed project is deferred, the CSREES project reviewer notifies the director, who confers with the project leader, department/unit head, and chair of the project review committee to resolve concerns.

After approval by CSREES, the director sends copies of Forms CSREES-166 (Project Review and Comment Sheet), AD-416, AD-417, and CSREES-2008 to the chair of the project review committee, department/unit head, and project leader. These documents, the proposal, and all pertinent correspondence are retained in the official project file in the VAES director's office for three years after termination of the project.

Program Review of VSU Agricultural Research

In March 2007, all programs at the School of Agriculture including those in Agricultural Research were reviewed by external experts. A six-member team selected by USDA-CSREES visited Virginia State University to conduct the review over a four-day period. The team reviewed programs, listened to faculty presentations, visited facilities, and talked to administrators. At the end of their visit, they made an oral presentation of their findings to faculty, staff and administrators. They also submitted a written report on the state of the School of Agriculture programs and made recommendations on the future direction of agricultural research at VSU. Implementation of these recommendations has already started.

Development of Proposals - Any applicant at ARS who desires to submit a proposal for consideration must first complete and submit a Request for Approval to Submit Proposals Form to the Director of Research. The Director of Research reviews the pre-proposal and notifies the applicant about a decision whether the proposal can be developed fully or not. All appropriate University and funding agencies' policies, procedures and guidelines should be adhered to when developing a proposal. Proposal development and submission deadlines are governed by the following: 1) Review and approval of Request for Approval to Submit Proposal Form takes one working day, and 2) University review and approval takes up to five working days.

Review of Full Evans-Allen Proposal - A full proposal is submitted by applicant(s) to the Director of Research for review by external anonymous experts in the respective fields. The Director of Research’s Office facilitates this process. The reviewers could be from Virginia Tech, other Land Grant Universities, or State and Federal agencies. The proposal is reviewed for addressing the needs of the state and people of Virginia and the United States, the degree of relevance of the proposed research to the land-grant mission and priorities of the University, the need for initiation of research in new areas, and other matters related to grantsmanship. The reviewers are asked to pay particular attention to scientific and technical merit, opportunities for cooperation in the proposed research with other individuals and units within the University and the Virginia clientele.

Functions of the reviewers are: 1) to review all proposals for scientific and technical merit, 2) to ensure that all proposals fulfill the land-grant mission and priorities of the University, 3) to ascertain that what is being proposed lies within the full range of expertise and capability of the investigators and the University, not withstanding their official duties, responsibilities, and assignments, and 4) to assist applicants with acceptable proposals in locating outside peers to further review the proposals, if necessary for substance and overall quality. Based on the external reviewers’ comments, the Director advises the applicant to address the concerns about the proposal or develop another one that incorporates the relevant suggestions.

Extension Review Process

The review process for Extension covers all programs conducted by VCE. VCE Planned Program Teams (PPT) develop Extension programs. The PPTs review programs on an annual basis and make decisions to maintain, modify, or create new programs to meet the needs identified through external and internal stakeholder input.

VCE addresses a broad range of problems and issues facing citizens of the Commonwealth through focused educational programming. This is accomplished and reported through VCE's ten PPTs and State Program Leaders who serve as partners for each PPT. A web-based planning and reporting system organized by the ten PPTs includes outputs and outcomes operationalized by annual program plans and reports. Plans are built on strategic issues through situation analysis. This process collaboratively determines social, economic, and environmental problems at local, regional, and state levels. This becomes the background and rationale for deciding which problems and issues will be addressed with VCE time, energy, and human and fiscal resources.

Problems and issues identified through situation analysis are communicated throughout VCE and educational program plans are developed by interdisciplinary PPTs composed of specialists and agents. These teams are organized around and reflect the breadth and scope of priority problems and issues facing the citizens of the Commonwealth. Program proposals identify programming outputs, outcomes, and an evaluation plan to be to conducted by the PPTs. The program proposals are reviewed by VCE programming leadership.

Program proposals from PPTs are distributed to all agent and specialist faculty on the VCE intranet and electronic planning "buy in" process. Faculty select programs for their situation by providing specific information, including the amount of time they plan to devote to the program. At the end of the year, each local unit and campus faculty member completes an annual accomplishment report documenting program relevance, response, and results through a narrative and impact statements.

http://cris.csrees.usda.gov/Welcome.html .http://cwf.uvm.edu/cris/ and sends a copy of the proposal electronically to the VAES office. The department/unit head transmits to the chair: 1.) completed and signed CRIS Form AD-416, 2.) copy of approval letter from Human Subjects, Laboratory Animal Care, or Biotechnology Oversight Committee approval (if required), and 3.) transmittal letter from project leader.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Other (focus groups, listening sessions, issue forms, key informant interviews)

Brief Explanation

At the state level, VCE works with stakeholders through the state Leadership Council (VCELC). The group includes volunteer leaders representing the 22 planning districts in Virginia, at-large members appointed by the director of VCE, leaders representing Virginia's diverse population, businesses, agencies, and organizations, VCE District Directors, chairs or designees of VCE FCS, and 4H leadership councils, VCE Director from VT , VCE Administrator from Virginia State University VSU, VCE staff from VT and VSU, Director of the VAES, and 1890 Director of Research.

Meetings of state and local ELCs are held at times and locations convenient for the membership. To increase participation, state ELC members were surveyed for preferred meeting times, days of the week, and meeting frequency. Virginia is a large, diverse state and as such, meeting locations are geographically distributed to ease travel burdens for members. Travel expenses are covered by VCE administration for meeting attendance. In 2007 an administrative liaison and support staff were assigned to work directly with the VCELC to assist with organizational development and logistics.

A systematic analysis of educational needs is integral for VCE program planning. Through situation analysis, needs of stakeholders are assessed, analyzed, and then shape program direction. Traditional methodologies include surveys, key informant interviews, and listening and focus group sessions. To encourage participation, surveys are conducted with paper and web-based response options. Listening and focus group sessions are held in multiple locations throughout service areas in convenient and comfortable environments for non-traditional and traditional stakeholders. Specific efforts are made to assess needs where underrepresented populations reside, and to market input sessions through communication channels used by targeted sectors of the population.

One example of VCE situation analysis is Westmoreland and Richmond Counties, where analysis data indicated a lack of quality educational programming for young people. The 4-H agent in Westmoreland and Richmond Counties conducted listening sessions with local youth and adults in the pubic school system. Participants were recruited in partnership with the public school through a written notice in 4-H newsletters, flyers distributed through the pubic school system to students and families, announcements at board of supervisors meetings, ELC members, postings at libraries, local churches, day care facilities, newspapers and other youth serving agencies and organizations. Listening sessions were held at the schools. As a result, 4-H youth enrollment in the two counties increased 67% and the adult volunteer enrollment increased 145%. New projects initiated included: a science SOL (Standards of Learning) enrichment offerings, an in-school program at an alternative school, an environmental education day camp, and classes on food safety and canning, gardening, flower arranging, sewing, and service learning opportunities.

Another example of VCE stakeholder participation is Chesterfield County, population 306,000. The county has become racially diverse over the last 10 years with a continuous increase in the Hispanic population. Eight percent of the county's population speaks a language other than English, minorities make up twenty-two percent of the population, and the median household income is $66,650. However, 6.5% of the population lives below poverty levels and families headed by females have increased 47%. To reach these diverse populations, county Extension faculty partnered with Head Start to conduct a needs assessment of program participants through focus groups and interviews. The sessions took place at Head Start locations. Assessments were also conducted in partnership with the Women's Correctional Center's pre-release population, faith-based forums, and public/assisted housing communities. Results were used to shape programs for these target audiences.

VCE and the Agricultural Research and Extension Centers (AREC) have long facilitated grassroots involvement and ownership in local programs. VCE formally connects with the grassroots of the state through partnerships with local volunteer Extension Leadership Councils (ELC). For the Virginia Agriculture Experiment Station (VAES), volunteer advisory councils provide stakeholder input. These partnerships represent the diversity of local clientele. Representation on ELCs include all VCE programming areas – 4H/Youth Development (4H), Family and Community Sciences (FCS), Agriculture and Natural Resources (ANR), and Community Viability, community leaders, and other community representatives and commodity groups. Currently, all 107 Extension units in Virginia have an organized local ELC and all ARECs have active advisory councils.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use External Focus Groups
- Open Listening Sessions
- Use Surveys
- Other (Extension Leadership Councils)

Brief Explanation

The Virginia Agricultural Experiment Station (VAES) conducts research relevant to the needs and priorities of the citizens of the Commonwealth. Research projects are established based on the input of advisory committees at each of the thirteen Agricultural Research and Extension Centers (ARECs) distributed across the state. The twelve academic departments within the College of Agriculture and Life Sciences each maintain stakeholder groups and the College has its own advisory committee of producers, commodity groups, and agribusiness leaders that provide important feedback to VAES. VAES provides research-based input to the VCE programming process through faculty research and Extension specialists and administratively through AREC directors and statewide Extension program leaders. VCE formally establishes connectivity with the grassroots of the state through partnerships known as Extension Leadership Councils (ELCs). At the local level, this partnership represents the diversity of each county and city in which VCE exists as a resource. Representation includes VCE programming areas (4-H/Youth Development, Family and Consumer Sciences, Agriculture and Natural Resources and Community Viability), community leaders, and other organized community entities who partner with VCE. Extension staff and Leadership Council members work as equal partners to determine needs, establish program priorities, plan and implement solutions, identify and secure resources, market VCE and its programs, and evaluate and report program results/impacts to program stakeholders. Currently, all 107 Extension units in Virginia report having an organized local ELC.

At the state level, local connectivity is achieved through the Virginia Cooperative Extension Leadership Council (VCELC). The partnership includes volunteer leaders representing the 22 planning districts of Virginia, at-large members appointed by the director and administrator, all VCE District Directors, all chairpersons (or designees) of VCE state program leadership councils for FCS and 4-H, the VCE Director (VT), the VCE Administrator (VSU), designated VCE staff from VT and VSU, the 1862 director of the agricultural experiment stations, the 1890 director of research, and the director of governmental relations at VT. Extension provides a formal mechanism for VSU and VT to receive stakeholder input for Extension and research programs.

The situation analysis process in communities examines and determines what issues, problems, and opportunities exist that VCE resources should address (http://www.ext.vt.edu/vce/support/process/situation.html).

An essential component of the process includes development of a unit profile (http://www.ext.vt.edu/vce/support/unitprofiledata.html). The unit profile developed by local agents is shared with ELCs to determine which key informants should be involved in situation analysis (http://www.ext.vt.edu/vce/support/keyinterviews.doc).

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Meeting specifically with non-traditional groups
- Other (focus groups, key informant interviews, public issues forums, listening sessions)

Brief Explanation

Following identification of primary and secondary audiences for Extension programming, Extension faculty focus on understanding the nature of challenges and opportunities facing the unit from a community and resident perspective. This situation analysis activity assesses peoples' knowledge, attitudes, and other perspectives on issues and problems they think impact their lives both positively and negatively. In addition, the situation analysis allows the ELC to connect with groups, agencies, and organizations to form collaborations to address the issues and problems expressed. Four methods (http://www.ext.vt.edu/vce/support/process/situation.html#needs) are utilized for assessing community and resident perspectives:

•Issues Forums
•Focus Groups
•Key Informant Interviews
•Survey

See stakeholder input, page one for specific examples.

3. A statement of how the input was considered

- In the Budget Process
- To Identify Emerging Issues
- In the Action Plans
- To Set Priorities
- Other (staff professional development)

Brief Explanation

A VCE situation analysis process systematically analyzes demographic, economic, agricultural, health, environmental, and other factors affecting people and their communities. Each VCE unit conducts and updates a formal situational analysis annually. This analysis serves as a major foundation for educational program planning throughout VCE. Extension staff and ELC members work together in the situation analysis process to determine needs and then establish program priorities, plan and implement solutions, identify and secure resources, market VCE and its programs, and evaluate and report program results/impacts to program stakeholders.

A variety of people representative of the population are involved in the situation analysis process. Deciding “what should be” or “which is more desirable” of several program options through the consensus judgments made by individuals. Both users and nonusers of VCE are vital participants in situation analysis. An aggressive recruitment effort ensures underserved groups and minorities are represented.

From the research perspective, each AREC with its respective advisory council conducts a research and educational needs assessment. This assessment mirrors the VCE situation analysis process but the community of interest is commodity based. For example, the Eastern Shore Agriculture Research Experiment Center (ESAREC) and its advisory council conducted a needs assessment survey of the Association of Virginia Potato and Vegetable Growers, Inc., and the Virginia Nursery Association, their primary research audience. Additionally, the Station’s Board of Directors meets twice annually, and includes representation from these commodity groups.

Further, quarterly meetings of the Association of Virginia Potato and Vegetable Growers, Inc. are attended by the Center’s Director. The ANR agents from both Accomack and Northampton counties make reports to this board and provide an opportunity for input into research and programming taking place at the Center.

Center faculty also provide education and conduct needs assessment at county and multi-county meetings including the Eastern Shore Agriculture Conference and Trade Show. Three field days are held annually at the Eastern Shore AREC where plots are toured, research is discussed, and conversations are conducted with those attending to assess needs. Field days are attended by producers and members of all segments of the agribusiness industry including consultants, dealers, distributors, sales people, bankers, politicians, seasonal homeowners, and others. Notifications about scheduled events are sent to mailing lists maintained by individual agents, published in newspapers, and announced on the radio.

In addition to the above areas of stakeholder involvement, faculty and staff at ESAREC maintain clinics open to agribusiness personnel and homeowners. Participants are consistently polled to identify educational needs. These events are advertised widely through media outlets including newspaper and radio.

VCE agents also gather stakeholder input through local government reports. Although county and city governments differ on preferred report formats, timing, and audience, these reports inform governmental officials and constituents of VCE educational programming efforts and allows them to provide feedback on educational needs.

The Dean of the VT College of Agriculture and Life Sciences conducts listening sessions with key stakeholders and agricultural commodity groups to ensure stakeholder input at the college level. These individuals and groups have a direct relationship with the work of the College, including VCE and VAES. Each professionally facilitated session uses the same format and questions including a general question about their perception of the College and then questions applying specifically to their industry. This process provides information specific enough to take appropriate action. College listening session questions include:

1. What are your perceptions of the College?
2. What are the issues facing you (or your industry) and your community?
3. Who is addressing those issues?
4. Is there a role for the College in addressing these issues?

The following listening sessions were conducted in the last three years with plans for follow-up sessions:

- Farm Bureau Young Farmers
- Poultry industry
- VT College of Agriculture and Life Sciences Leadership Council
- Grape and wine industry
- Equine industry

•Christmas Tree Growers Association
•Virginia Agribusiness Council
•Green Industry

Finally, linkages with stakeholder groups are formed by VCE faculty serving as ex officio members of state agricultural commodity groups. Faculty are also members of the Virginia Department of Agriculture and Consumer Service's (VDACS) Board of Agriculture.

VCE and the College of Agriculture and Life Sciences also have active representation on the Council for Rural Virginia and partner with the Virginia Association of Counties and the Virginia Municipality League in conducting Virginia's Rural Caucus where residents provide input regarding the needs of rural citizens. Information generated by these events and processes are used to shape Extension and research programs in Virginia.

Brief Explanation of what you learned from your Stakeholders

Input from stakeholder groups is considered in identifying current and emerging issues, setting priorities for programs and developing an implementation plan. This ultimately influences the budget process. This is illustrated through an assessment carried out by the Grayson County VCE faculty. Three new agents were hired over fifteen months. These new faculty discovered that few citizens were aware of the scope of topic areas that VCE could address. Further, it was discovered that historically, citizen involvement was lacking and the county had been without an agent in family and consumer sciences for over 12 years.

Grayson County is geographically diverse with isolated communities, however, centralized educational programs are common. To assess needs and identify potential localities for programming, Grayson County faculty conducted community listening sessions to introduce themselves to citizens, receive input on county needs, inform citizens about the range of educational topics offered, and recruit advisors and volunteers. These sessions were conducted in eight areas of the county. Locations were paired by proximity to give an afternoon and evening option to citizens. Staff printed 1,500 flyers to distribute at community locations including sending them home with students at each school. Press releases were submitted to the radio and newspapers. Volunteers and staff also shared session information by word of mouth.

Results from the listening sessions were used to determine the future direction of Grayson County's Extension programs. Attendance was greater at geographically isolated locations which historically were underserved by VCE. Common needs included extracurricular youth programs, senior citizen well-being, and community enhancement, all of which are currently being addressed by the agents. Following listening sessions, participants commented on how little they had known about the breadth of Extension efforts.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
6731805	1959453	7046409	2239311

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	6649715	1136966	4377054	2239311
Actual Matching	7710834	2080161	10206509	2297177
Actual All Other	21059145	252400	38564627	858328
Total Actual Expended	35419694	3469527	53148190	5394816

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	7573907	0	0	433349

V. Planned Program Table of Content

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agricultural and Food Biosecurity

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
136	Conservation of Biological Diversity	15%	5%	15%	0%
307	Animal Management Systems	15%	5%	15%	0%
311	Animal Diseases	15%	5%	15%	0%
314	Toxic Chemicals, Poisonous Plants, Naturally Occuring Toxir	5%	5%	5%	0%
315	Animal Welfare/Well-Being and Protection	10%	5%	10%	0%
711	Ensure Food Products Free of Harmful Chemicals, Including	10%	25%	10%	0%
712	Protect Food from Contamination by Pathogenic Microorgani	15%	25%	15%	0%
903	Communication, Education, and Information Delivery	15%	25%	15%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	4.4	1.0	3.2	0.0
Actual	4.3	2.0	3.2	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
76597	150000	77601	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
88820	180000	180952	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
242578	18300	846992	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research studies, conduct presentations, workshops, meetings, and trainings, conduct biosecurity audits, develop publications, curriculum, and resources, partner with other states to develop multistate cooperation, provide consultation, leadership, and facilitation, and partner with the livestock, poultry, food, and horticulture industries.

2. Brief description of the target audience

Nursery/landscape personnel, Master Gardeners, gardening public, food processors, food producers, food handlers, consumers, livestock and poultry producers, integrated poultry operation personnel and management, Extension educators, and policy makers.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1500	4000	50	0
2007	4021	6955	690	1193

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	2	7	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational meetings, workshops, conferences, and training sessions

Year	Target	Actual
2007	10	12

Output #2

Output Measure

- Number of commercial poultry operations audited for adherence to the Virginia Poultry Federation Biosecurity Guidelines

Year	Target	Actual
2007	7	5

Output #3

Output Measure

- Number of newsletters, fact sheets, publications and other print resources

Year	Target	Actual
2007	15	34

Output #4

Output Measure

- Number of websites developed and maintained

Year	Target	Actual
2007	2	2

Output #5

Output Measure

- Number of research studies conducted

Year	Target	Actual
2007	2	3

Output #6

Output Measure

- Number of VCE agents offering biosecurity trainings

Year	Target	Actual
2007	2	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of animal premises registered in conjunction with the National Animal Identification System
2	Number of commercial poultry growers adopting biosecurity practices to lower the risk of disease transmission
3	Number of food companies who register with FDA and prepare a food biosecurity plan
4	Percent reduction in the number of invasive NIS sold
5	Number of participants gaining knowledge on the invasive NIS
6	Number of technologies created and tested to track high risk plant pathogens

Outcome #1

1. Outcome Measures

Number of animal premises registered in conjunction with the National Animal Identification System

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1500	1482

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Johne's disease is a chronic gastrointestinal disease of ruminants with significant economic impact on dairy and beef cattle operations in Virginia. There is concern the organism causing Johne's disease is involved in causation of Crohn's Disease in humans. The United States Department of Agriculture's implementation of the voluntary, National Animal Identification System will protect the health of the U.S. livestock industry and preserve consumer confidence. The pillar of this process is the registration of individual farms, or premises into a national data base.

What has been done

VCE partnered with VDACS and APHIS to carry out the Virginia Johne's Disease Control and Prevention Program. The group uses the Federal Johne's Control Guidelines to implement on-farm control programs. The educational program, National Animal Identification System, involves Extension specialists from several departments, as well as local Extension agents. The primary focus of the program has been to provide education to livestock industries regarding NAIS, and to facilitate registration of individual farms and animal premises as the first step of preparedness for NAIS.

Results

Over $0.7 million has been received in federal grants to implement the program based on risk assessments and management plans to help producers lower the risk of the disease. Veterinarians and VCE agents have been trained in administering the program. Over 100 farms have been enrolled in the program to date. In 2007, 1,284 additional Virginia livestock premises were registered with USDA.

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
903	Communication, Education, and Information Delivery
307	Animal Management Systems
311	Animal Diseases

Outcome #2

1. Outcome Measures

Number of commercial poultry growers adopting biosecurity practices to lower the risk of disease transmission

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In Virginia, poultry and egg production contributed approximately $834 million to the economy in 2006, accounting for approximately 34% of all farm commodities. With the continuing threat of disease outbreak in the poultry industry, including widely recognized and publicized Avian Influenza (AI), the importance of biosecurity measures to prevent and limit disease spread are critical.

What has been done

A Biosecurity Audit Program was developed and is reviewed quarterly by the Virginia Poultry Disease Task Force with representatives from academia, industry, and regulatory agencies. As part of this program, commercial poultry producers in Virginia participate in biannual audits of their biosecurity practices. The external Biosecurity Audit team assesses all segments of live production for the commercial broiler, turkey, and egg producers in Virginia to identify biosecurity risks and opportunities for improvements in the control of disease outbreak or spread.

Results

In 2006, 8 biosecurity audits were conducted of commercial poultry or egg producers in Virginia. Middle management communicated that as a result of audit reports provided to each company, other company personnel and growers were educated on the identified biosecurity risks, corrective measures were taken by company personnel and growers, and awareness of biosecurity practices was increased. Audits performed this year also provided evidence that additional biosecurity practices and guidelines have been implemented in individual companies in response to suggestions and educational material provided. Since the audits were initiated, the average audit scores (percentage of maximum score achieved) of those companies participating every year have improved from 85% in 2004 to 97% in 2007. In 2007, a case of AI was identified in a commercial poultry operation in Virginia but was immediately quarantined and the disease was contained to this one farm. This is a further indication of improvements in biosecurity procedures in the industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
903	Communication, Education, and Information Delivery
311	Animal Diseases

Outcome #3

1. Outcome Measures

Number of food companies who register with FDA and prepare a food biosecurity plan

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In accordance with federal regulations, food processing facilities must be registered for biosecurity purposes. The registration helps ensure that foods are produced in a safe, wholesome manner. Recent food borne disease outbreaks from food produced in commercial facilities has underscored the importance of this registration.

What has been done

During 2007, five workshops and two roundtables were held with food processors and food distributors to discuss, Hazard Analysis and Critical Control Point System (HACCP), recall, and biosecurity procedures. These three day sessions were activity based to help participants develop HACCP, recall, and biosecurity plans.

Results

Fifty facilities registered their company with the Food and Drug Administration. The training sessions increased the awareness of food regulations by food producers. In many cases this was the first exposure these individuals had to food microbiology and food safety principles. Participants increased their knowledge of the value of regulations to produce products in a safe manner. Continual learning and improvement in food safety also adds economic value for the facility.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residu
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures
Percent reduction in the number of invasive NIS sold

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

Priorities in this planned program changed and NIS sales data was not collected in 2007.

4. Associated Knowledge Areas

KA Code	Knowledge Area
314	Toxic Chemicals, Poisonous Plants, Naturally Occuring Toxins, an
136	Conservation of Biological Diversity

Outcome #5

1. Outcome Measures

Number of participants gaining knowledge on the invasive NIS

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The USDA Risk Management Agency (RMA), which provides a crop insurance program for growers, observed that crop loss claims in legumes were mainly from pests and diseases and asked research agencies to develop a Pest Information for Extension and Education (PIPE) program for legumes. Claims increased with the introduction of the Asian soybean aphid, which transmits viruses of legumes and soybean, and losses were thought to be caused by viruses.

What has been done

Funds were obtained from the USDA Critical Issues program to begin work in January 2007 on developing accurate assays for six legume viruses using the tissue blot immunoassay (TBIA) format, previously used successfully for soybean viruses in Virginia. This was followed by designing a high throughput system for testing for multiple viruses in samples from sentinel plots for delivery in a prototype kit assembled by Agdia, Inc. to collaborators nationwide. Special training modules were developed for the diagnosticians and scientists to complete the assays in their respective laboratories.

Results

The Legume PIPE proceeded on a pilot project basis in 2007, with the objectives to develop a system to monitor for viruses to assess their potential role in losses claimed by insured bean producers, to build capacity in virus diagnosis in the nation for possible biosecurity events, and to build a platform for reporting data on viruses and other diseases of legumes. The TBIA assay kits were used successfully to test nearly 12,000 plants from two samplings of 58 soybean and 158 bean sentinel plots in 29 and 27 states, respectively, for two to four viruses each. Although additional research is needed to improve certain aspects of the assay, the project was judged successful and will be repeated in 2008. Funds have been requested to continue development and validation of TBIA over the next three years. Information on virus identity and incidence, using this method of detection, will contribute to the biosecurity of the nation's legume crops, and contribute to regional, national, and international data on viruses. Capacity of diagnostic laboratories to conduct virus diagnosis was enhanced nationwide. Incidence and prevalence data also contributes to prioritization of research and Extension efforts and funding to develop integrated management strategies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
314	Toxic Chemicals, Poisonous Plants, Naturally Occuring Toxins, an

903	Communication, Education, and Information Delivery

Outcome #6

1. Outcome Measures

Number of technologies created and tested to track high risk plant pathogens

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Technologies are needed to anticipate, prevent, prepare for, and respond to the introduction of high risk plant pathogens (HRPPs) into the United States. Many HRPPs are transported over long distances in the atmosphere (e.g., stem rust of wheat, soybean rust, and tobacco blue mold), threatening agriculture in the United States from both inside and outside the borders of the country. The ability to detect, monitor, and forecast the movement of HRPPs in the atmosphere is essential for establishing effective quarantine measures, preventing the spread of plant disease.

What has been done

In 2007, the Schmale lab developed and implemented self-controlling aircraft to study the movement of HRPPs in the atmosphere, tens to hundreds of meters above the surface of the earth. The program cuts across traditional boundaries of scientific disciplines, blending advanced technologies in biology and engineering. A three year grant proposal of nearly $1 million was funded by the USDA NRI.

Results

In 2007, over 130 sampling flights were conducted tens to hundreds of meters above agricultural fields at Virginia Tech's Kentland Farm. Findings provided a regional evaluation of disease spread potential for HRPPs, assisting growers and producers by providing an early warning system for these diseases. This work has led to measurable improvements in the management of agricultural ecosystems through emergency control measures, infrastructure and human resources, and reporting and communication. This work resulted in new tools necessary for the on site detection of HRPPs collected from the atmosphere and identified limits of long distance transport for HRPPs. This work continues to assist in predicting/forecasting the distribution and spread of HRPPs in the atmosphere.

4. Associated Knowledge Areas

KA Code	Knowledge Area
314	Toxic Chemicals, Poisonous Plants, Naturally Occuring Toxins, an
136	Conservation of Biological Diversity

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Programatic Challenges

Brief Explanation

There was no collection of NIS sales data this year by faculty. This program has also moved to the Pest Management planned program for future years.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- Before-After (before and after program)
- Time series (multiple points before and after program)

Evaluation Results

See impact statements

Key Items of Evaluation

Enhanced safety of poultry operations as a result of biosecurity audits. As a result, an outbreak of Avian Influenza in Virginia was isolated to one farm.

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agricultural Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%	10%	10%	0%
111	Conservation and Efficient Use of Water	10%	10%	10%	0%
112	Watershed Protection and Management	10%	10%	10%	0%
131	Alternative Uses of Land	10%	10%	10%	0%
205	Plant Management Systems	10%	10%	10%	0%
307	Animal Management Systems	10%	10%	10%	0%
402	Engineering Systems and Equipment	10%	10%	10%	0%
403	Waste Disposal, Recycling, and Reuse	10%	10%	10%	0%
601	Economics of Agricultural Production and Farm Management	10%	10%	10%	0%
605	Natural Resource and Environmental Economics	10%	10%	10%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	50.2	6.0	36.5	0.0
Actual	20.4	5.0	36.5	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
362501	220124	367251	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
420347	440247	856364	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1148014	46000	9661008	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research experiments, establish partnerships to identify needs and develop solutions, conduct workshops and meetings to provide training for farmers and educators, organize and conduct state and regional conferences, establish on-farm demonstrations, develop enterprise budgets, develop products, curriculum, and resources, and conduct assessments as needed to evaluate progress.

2. Brief description of the target audience

Commercial producers, state and federal agency personnel, Extension educators, policy makers, and consumers.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	28350	75300	5200	57800
2007	76820	121973	13048	20717

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	16	24	40

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educator training workshops

Year	Target	Actual
2007	12	11

Output #2

Output Measure

- Number of field research experiments

Year	Target	Actual
2007	12	40

Output #3

Output Measure

- Number of on-farm demonstrations

Year	Target	Actual
2007	12	39

Output #4

Output Measure

- Number of producer training workshops

Year	Target	Actual
2007	160	111

Output #5

Output Measure

- Number of existing and future nutrient management planners and educators trained

Year	Target	Actual
2007	1000	368

Output #6

Output Measure

- Number of soil test recommendations provided for Virginia land owners

Year	Target	Actual
2007	{No Data Entered}	52867

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of certified organic farms
2	Number of acres of certified organic production
3	Gross income derived from sales of organic products
4	Number of hits on Mid Atlantic Water Quality Website to increase awareness of water quality
5	Increase in the amount of land subject to best management practices (e.g., nutrient management plans, conservation plans, etc.)
6	Percent reduction in the transport of N, P, and sediment to the Chesapeake Bay and its tributaries.
7	Percent increase in gross income from non-organic farming agriculture

Outcome #1

1. Outcome Measures

Number of certified organic farms

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	120	120

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Understanding the process to transition from traditional agriculture production systems to organic and sustainable systems is difficult. Very little guidance is provided by in-state agricultural organizations. Producers need timely and accurate recommendations to help them transition to economically viable organic and alternative agriculture systems.

What has been done

Organic or sustainable agriculture operations have been provided with ongoing assistance and crop recommendations in an intensive effort to ease their organic and sustainable production costs and improve profits. Formal trainings and informal educational events have been held to train workers and stakeholders. Specialists and agents combine to provide intensive on-site recommendations.

Results

Educational efforts have helped farmers transition to, and function within organic production systems. Reporting on a few case studies: Two operations have reported increased profits over the past five years in excess of 300%. One operation has gone from net sales of less than $100,000/yr. to over 600,000/yr. in five years. Three operations have reported increased sales and profitability of between 150-200%.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
131	Alternative Uses of Land
605	Natural Resource and Environmental Economics
601	Economics of Agricultural Production and Farm Management
205	Plant Management Systems
111	Conservation and Efficient Use of Water

Outcome #2

1. Outcome Measures

Number of acres of certified organic production

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000	3264

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Organic production techniques and the associated ability to market products as certified organic can increase the value associated with these products.

What has been done

VCE educational events and demonstrations have been conducted to educate stakeholders and those interested in organic production. Specialists and agents work together to deliver these programs.

Results

According the the Virginia Agricultural Statistics Service, the number of acres of certified organic production in Virginia has increased to over 3,200.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
605	Natural Resource and Environmental Economics
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management
131	Alternative Uses of Land
112	Watershed Protection and Management

Outcome #3

1. Outcome Measures
Gross income derived from sales of organic products

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	6000000	4300000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Organically raised products often garner a premium from consumers enhancing producer's profitability.

What has been done

Organic or sustainable agriculture operations receive ongoing assistance and crop recommendations from VCE. Specialists and agents conducted a number of training programs, field demonstrations, and experiments to support producer efforts.

Results

Total sales of organic products sold in Virginia were estimated to be $4.3 million last year. This is up by more than 10% over previous years.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #4

1. Outcome Measures

Number of hits on Mid Atlantic Water Quality Website to increase awareness of water quality

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	6087

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Water quality in the Chesapeake Bay and its tributaries is a major issue in Virginia and the Bay states. A lot of effort and tax dollars have been spent on strategies to reduce pollution to surface waters. Nitrogen, phosphorus, and sediment come from both agriculture and urban lands causing algae blooms and turbidity. All citizens need to understand their contribution to water pollution and how they can be involved in Bay restoration efforts.

What has been done

The Mid-Atlantic Water Quality Working Group developed a website as a major interface and source for water quality research and reporting for the region.

Results

In the last year, the site was accessed by over 6,000 individual users.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

Outcome #5

1. Outcome Measures

Increase in the amount of land subject to best management practices (e.g., nutrient management plans, conservation plans, etc.)

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Chesapeake Bay Program and cooperating states seek to achieve large reductions in nutrient loadings to the Bay by 2010. In seeking to meet the Commonwealth's 2010 targets for nutrient loss reductions from crop farms, a number of best management practices (BMP's) were recommended and producers receive cost share funding to implement most of them. Specifically, five BMP's have been targeted for adoption because they are believed to offer the greatest potential benefit.

What has been done

Agents and specialists instituted a number of workshops, meetings, field days, and experiments that demonstrated BMPs to producers. These events not only demonstrate how to successfully implement these practices, but help solve production problems that might otherwise limit adoption. The economic impacts of these practices are evaluated in most cases. Experimental data are also being collected to support the environmental benefits of these practices.

Results

Agricultural BMP's are currently cost-shared on over 40% of the acres in Virginia. These practices are probably implemented on many more acres because this approach does not account for BMP's implemented without cost share or outside programs. The adoption of agriculture BMP's has been increasing at an additional 5% of acres annually.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
112	Watershed Protection and Management
131	Alternative Uses of Land
111	Conservation and Efficient Use of Water
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management
605	Natural Resource and Environmental Economics
307	Animal Management Systems

Outcome #6

1. Outcome Measures

Percent reduction in the transport of N, P, and sediment to the Chesapeake Bay and its tributaries.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

By 2010, Virginia is committed to making significant reductions of sediment, nitrogen, and phosphorus to the Chesapeake Bay waters. The tributary strategies developed for each major watershed are counting on agriculture to provide the largest share of reductions because pound for pound agriculture can do it more efficiently.

What has been done

Agents and specialists throughout VCE are advocating for use of no-till crop production where feasible. Studies have shown that compared to conventionally tilled fields, losses of sediment can be reduced by 99%, nitrogen by 94%, and phosphorus by 92%. A number of demonstrations detailing appropriate techniques and methods of no-till crop production have been conducted.

Results

In 2000, the Northeast Extension District had less than 10,000 acres in continous no-till crops. By 2007, a survey showed the District had increased to over 280,000 acres (83%) of total grain cropland in continous no-till. During the same time period the statewide continuous no-till crop acreage increased from 5% to 41% (440,000 acres).

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
403	Waste Disposal, Recycling, and Reuse
112	Watershed Protection and Management
402	Engineering Systems and Equipment
605	Natural Resource and Environmental Economics
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
307	Animal Management Systems
131	Alternative Uses of Land

Outcome #7

1. Outcome Measures
Percent increase in gross income from non-organic farming agriculture

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	8	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Improved financial security of individuals, families, and agricultural businesses is critical for the long-term economic health of Virginia. Profitable and successful farms and small businesses are the cornerstone of robust families and the communities in which they live. Crop and livestock producers need to balance farm and feed resources to maximize profits.

What has been done

Agents and specialists have instituted a number of on-farm demonstrations, field days, and workshops that demonstrate profitable practices to producers. Crop variety and management evaluations, profitable dairy production strategies meetings, beef production programs, and many other specialty crop and animal production meetings and demonstrations were held.

Results

Overall agricultural profitability has been growing, 1-8%, annual for the last several years in Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management
307	Animal Management Systems
131	Alternative Uses of Land

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy

Brief Explanation

The high cost of feed and inputs for animal agriculture have decreased the relative profitability of these industries. This has had a major impact on the overall profitability of agriculture in Virginia. A severe drought has also affected all agricultural systems in the state in 2007.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Case Study
- Other (VDAC Statistics)

Evaluation Results

Key Items of Evaluation

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food, Nutrition, and Health

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	10%	10%	10%	10%
502	New and Improved Food Products	10%	10%	10%	10%
702	Requirements and Function of Nutrients and Other Food Cor	20%	20%	20%	20%
703	Nutrition Education and Behavior	20%	20%	20%	20%
711	Ensure Food Products Free of Harmful Chemicals, Including	15%	15%	15%	15%
712	Protect Food from Contamination by Pathogenic Microorgani	15%	15%	15%	15%
724	Healthy Lifestyle	10%	10%	10%	10%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	29.3	2.0	21.3	1.0
Actual	45.8	4.0	21.3	1.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
816385	100000	827082	259932
1862 Matching	1890 Matching	1862 Matching	1890 Matching
946658	150000	1928607	401047
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2585429	12800	5637794	219977

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct educational workshops, meetings, and trainings, develop products, curriculum, and resources, facilitate coalitions and/or task forces, conduct assessments and community surveys, partner with community and institutions, create/revise social systems and public policies, conduct research studies, and disseminate program and research results through papers, reports, and media.

2. Brief description of the target audience

Childhood Nutrition and Fitness will target young children (2 - 5 years), school-aged children, adolescents, parents, caregivers, and school faculty of young children, youth, and adolescents. Extension educators Chronic Disease will target young adults (ages 25 – 59), older adults (age 60 and older), caregivers of older adults, adults with type 2 diabetes, parents and caregivers of individuals with type 2 diabetes, senior center and meal site staff and volunteers, and Extension educators.Food Safety will target Extension educators and commercial food processors.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	90830	41442	37123	5047
2007	213202	178417	112903	94482

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	18	67	85

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Food Safety - Number of ServeSafe classes offered by Extension educators

Year	Target	Actual
2007	10	30

Output #2

Output Measure

- Chronic Disease Prevention - Number of diabetics and their caregivers participating in a Dining with Diabetes program (offered

Year	Target	Actual
2007	50	228

Output #3

Output Measure

- Childhood Nutrition & Fitness - Number of adolescents participating in Invent Yourself

Year	Target	Actual
2007	50	0

Output #4

Output Measure

- Childhood Nutrition & Fitness - Number of pre-school aged youth enrolled in HeadStart participating in Food Friends and

Year	Target	Actual
2007	200	1875

Output #5

Output Measure

- Childhood Nutrition & Fitness - Number of school-aged youth participating in the Virginia Cooperative Extension Healthy

Year	Target	Actual
2007	10000	11325

Output #6

Output Measure

- Childhood Nutrition & Fitness - Number of school-aged and adolescent youth participating in Virginia Action for Healthy K

Year	Target	Actual
2007	200	2154

Output #7

Output Measure

- Childhood Nutrition & Fitness - Number of parents and youth participating in Suppers Made Simple, a cooking-based pro

Year	Target	Actual
2007	50	41

Output #8

Output Measure

- Chronic Disease Prevention - Number of adults participating in at least one session of the Healthy Lifestyles program

Year	Target	Actual
2007	2500	2980

Output #9

Output Measure

- Chronic Disease Prevention - Number of older adults, volunteers, and staff members participating in the Eat Better Move More

Year	Target	Actual
2007	250	0

Output #10

Output Measure

- Food Safety - Number of home-based food business workshops conducted for developing a business plan (i.e. sources of fina

Year	Target	Actual
2007	4	5

Output #11

Output Measure

- Food Safety - Number of shortcourses provided on food safety practices including HACCP training to industry personnel, cons

Year	Target	Actual
2007	3	4

Output #12

Output Measure

- Food Safety - Number of analyses conducted of Virginia wines for stability and palatability

Year	Target	Actual
2007	100	100

Output #13

Output Measure

- Number of research projects completed on food safety

Year	Target	Actual
2007	1	4

Output #14

Output Measure

- Number of research papers published on food safety

Year	Target	Actual
2007	0	6

Output #15

Output Measure

- Chronic Disease: Number of research projects completed or in progress on obesity and related chronic disease.

Year	Target	Actual
2007	{No Data Entered}	10

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Childhood Nutrition & Fitness - Number of individuals who gain knowledge and awareness of MyPyramid, how to choose healthy snacks and beverages, and the importance of positive body image and physical activity through participation in Healthy Weights for Healthy Kids
2	Childhood Nutrition & Fitness - Number of children who report eating healthier foods and being more physically active at school as a result of Virginia Action for Healthy Kids local initiatives
3	Childhood Nutrition & Fitness - Number of parents who intend to increase the number of meals eaten as a family each week and the availability of fruits, vegetables, whole grains, or dairy in suppers, as a result of Suppers Made Simple
4	Childhood Nutrition & Fitness - Number of pre-school aged youth participating in Food Friends and Mighty Moves or another childcare-center program who demonstrate an improvement in attitude toward trying new foods, fruits, vegetables, whole grains, or physical activities after participation in the program
5	Childhood Nutrition & Fitness - Number of adolescents who report improvements in dietary habits after participating in Invent Yourself
6	Chronic Disease Prevention - Number of individuals with diabettes who have lowered their Hemoglobin A1c level by at least one point, three months after participating in a Dining with Diabetes program (offered in cooperation with a local health care provider)
7	Chronic Disease Prevention - Number of adults participating in at least one session of the Healthy LIfestyles program who report one change in their food or fitness behavior after attending the program
8	Chronic Disease Prevention - Number of older adults, volunteers, and staff members participating in the Eat Better Move More or other food and fitness program offered at senior centers and meal sites who improved their score on a healthy eating or fitness measurement three months after completion of the program
9	Food Safety - Number of managers, supervisors, and food handling personnel from restaurants, public school and hospital cafeterias, daycare centers, nursing homes, university foodservice, correctional centers, and other foodservice industries who increase knowledge and skills in safe food handling practices
10	Food Safety - Number of Virginia food producers and processors to implement (pre and post harvest) HACCP, quality assurance programs and processing technology that will provide for increased food safety and processing efficiency
11	Food Safety - Number of home-based business entrepreneurs who are provided with assistance and training who increase awareness and knowledge in starting a food processing business
12	Food Safety - Number of consumers and at-risk populations, including civic/community groups, senior citizens, child care providers, youth, 4-H youth, Master Food Preservers, and volunteer cooks at fund-raising events, who increase their knowledge of foodborne illness, safe food handling practices, and food preservation
13	Food Safety - Number of producers or marketers learning food protection principles
14	Food Safety - Number of consumers and regulators learning food protection facts
15	Chronic Disease Prevention - Number of discoveries from completed obesity related research projects which focus on examining obesity from its root causes to its association with disease.
16	Number of raw food samples tested for increased internet purchase food safety.

Outcome #1

1. Outcome Measures

Childhood Nutrition & Fitness - Number of individuals who gain knowledge and awareness of MyPyramid, how to choose healthy snacks and beverages, and the importance of positive body image and physical activity through participation in Healthy Weights for Healthy Kids

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	7500	10192

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Recent data indicate 17% of children and adolescents (6-19) are overweight. Overweight children are more likely to have high blood pressure, high cholesterol, and type 2 diabetes, and a tendency to be overweight as adults. Childhood overweight also has social, psychological, and economic consequences. Large children report lower self-esteem, sadness, marginalization, and lower quality of life than healthy weight children and cost approximately $72 more per year in health related costs.

What has been done

Healthy Weights for Healthy Kids, a program developed by VCE responds to this public health concern in the Commonwealth. The program is aimed at youth seven and 14 years of age to prevent childhood overweight. It contains six lessons to promote healthy weights among children Smart Foods, Smart Choices, Smart Drinks, Smart Snacks, Smart Activity, and Smart Body. The program is based on the experiential learning model.

Results

To prevent childhood overweight among school aged children, Healthy Weights for Healthy Kids was delivered to 11,325 youth/students with nearly 10,192 estimated to have increased their knowledge and awareness of MyPyramid, how to choose healthy snacks and beverages, and the importance of positive body image and physical activity. Students also demonstrated improved ability to use nutrition labels to make healthy food choices. Such comments as "I can provide a healthy lifestyle for my younger sister" and "I will start exercising more to get healthier" were indications the HWHK program had an impact on many of the participants. One primary school parent commented that her son changed her entire family based on this program he learned how to read nutrition labels for sugar content and taught his family to be more aware of what they are eating.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Childhood Nutrition & Fitness - Number of children who report eating healthier foods and being more physically active at school as a result of Virginia Action for Healthy Kids local initiatives

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150	2154

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

More than 95% of American children are enrolled in schools. They have a critical role in promoting good nutrition and physical activity for the prevention of childhood overweight. According to the Child Nutrition and WIC Reauthorization Act of 2004, each school division was mandated to adopt a local wellness policy. While the legislation provided impetus to formally address contributors to childhood overweight, no additional funding was provided to actually implement the policies.

What has been done

Armed with a $25,000 grant from the Kellogg Foundation, Virginia Action for Healthy Kids launched a competitive mini grant program to empower and involve parents from rural areas in the implementation of local wellness policies in their local school districts. From a pool of 22 applications, five mini grants of $4,000 each were awarded to teams to focus on improved nutrition outside of school meals and increased physical activity outside of physical education.

Results

A total of 2,154 youth were offered healthier foods and beverages in classrooms and more opportunities for physical activity as a result of Virginia Action for Healthy Kids. Teams encouraged teachers to utilize healthy or non food as rewards and healthy foods for celebrations in their classrooms rather than candy. One teacher said, "I have really enjoyed participating in this program. I feel happy to know that I distributed quality items rather than just handing out candy this year it makes me feel like a good role model for my class." For the physical activity component, the teams focused on creating before and after school walking programs. One parent organizer said, "In the end we also won over the teachers. The program grew because they saw a well organized and safe program that benefited classroom instruction." "Children also proved to have better behavior when they started school" (given) "the opportunity to run off some of their excess energy."

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #3

1. Outcome Measures
Childhood Nutrition & Fitness - Number of parents who intend to increase the number of meals eaten as a family each week and the availability of fruits, vegetables, whole grains, or dairy in suppers, as a result of Suppers Made Simple

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	37	14

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Childhood overweight has reached epidemic levels at the national level and in Virginia. Major contributing factors include decreased physical activity and increased consumption of calorie dense, nutrient poor foods. Research indicates children who eat meals frequently with their family not only have a higher quality of dietary intake, but they also demonstrate higher school performance and are less likely to engage in high risk behaviors such as smoking, drinking, and taking illegal drugs.

What has been done

To encourage families to adopt healthy habits related to food choices, physical activity and family meals, VCE offered the Suppers Made Simple program. The program reached 17 parents and 24 children. During each 90 minute session, program participants worked together to prepare a quick and easy supper meal, participated in a fun family centered physical activity, dined together in family groups, and cleaned up.

Results

As a result of the program, 14 parents made commitments to increase the number of meals eaten as a family each week in their homes. In addition, the same number of parents indicated intent to increase the availability of fruits, vegetables, whole grains and/or dairy in their evening meals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
703	Nutrition Education and Behavior

Outcome #4

1. Outcome Measures

Childhood Nutrition & Fitness - Number of pre-school aged youth participating in Food Friends and Mighty Moves or another childcare-center program who demonstrate an improvement in attitude toward trying new foods, fruits, vegetables, whole grains, or physical activities after participation in the program

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150	1565

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

An estimated 14% of preschool aged children in the United States are overweight. Good nutrition is important to the growth, development, and emotional well being of young children and to prevent childhood overweight. Yet only 36% of two to three year olds have a "good" diet. Because many children spend much of their day in childcare centers, these centers can promote an environment that encourages healthful eating.

What has been done

To prevent overweight among pre school aged children, 12 family and consumer science Extension agents conducted the Food Friends program throughout Virginia. Food Friends, a 12 week multifaceted awareness and education program, promotes healthful habits, literacy, and skill building among at risk preschool aged children by encouraging children to try new foods. A fear of trying new foods is common and can translate into limited dietary variety and lower dietary quality, associated with overweight.

Results

Supported by a grant from the USDA CSREES National Research Initiative, Food Friends was delivered in Virginia in 2007 to approximately 1,500 youth. Twelve FCS Extension agents trained Head Start teachers from 125 classrooms on program materials, concepts, and child feeding issues. They also conducted pre and post surveys with teachers to measure program impact and to examine the association between teacher's attitudes and children's dietary behaviors. Based on 145 matched surveys, the following percentage of teachers reported improvements: children tried more "new foods" (84%); children ate more fruits and vegetables (49%); children ate a wider variety of foods (64%); teachers, personally, tried more "new foods" (56%); teachers ate more fruits and vegetables (38%); and teachers ate a wider variety of foods (37%). Overall, the program was found to be successful in improving not only children's dietary practices, but teacher's too.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #5

1. Outcome Measures

Childhood Nutrition & Fitness - Number of adolescents who report improvements in dietary habits after participating in Invent Yourself

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	37	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

This curriculum was not finalized in 2007, therefore no programs pertaining to "invent yourself" were delivered.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #6

1. Outcome Measures

Chronic Disease Prevention - Number of individuals with diabettes who have lowered their Hemoglobin A1c level by at least one point, three months after participating in a Dining with Diabetes program (offered in cooperation with a local health care provider)

2. Associated Institution Types

•1862 Extension
•1890 Extension
•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	30	29

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Diabetes is the sixth leading cause of death in Virginia. Over 400,000 Virginians have been diagnosed with diabetes and another 132,000 Virginians have diabetes and don't know it. Diabetes has a high cost in money, loss of productivity, and quality of life. In Virginia diabetes leads to 11,700 hospitalizations each year, at a cost of nearly $173 million.

What has been done

FCS agents cooperated with local health care professionals to offer Dining with Diabetes. The program consists of four, two hour classes with a reunion class three months following. This program helps people learn more about self-care, appropriate food choices, and life style patterns that can prevent or slow the complications of diabetes. Dining with Diabetes was offered at nine locations across Virginia and enrolled 228 people with diabetes and interested family members.

Results

Following completion of the program, over 90% of participants recognized the need for an annual eye exam, an annual foot exam, and a specialized blood test three to four times each year. At the first class 38% reported using a meal planning method to control their carbohydrate intake as compared to 74% following completion of the program. At the first class 73% reported at least 30 minutes of physical activity on most days as compared to 82% following completion of the program. Hemoglobin A1c was measured, an indicator of average blood sugar levels over the two months prior, and helped participants understand the importance of this test. Research shows people with even small decreases in their A1c may require fewer physician visits in the years following and save at least $685 per year in health care costs. Overall 29% improved their diabetes management, 38% maintained their good diabetes management, and 14% moved from an unacceptable A1c range to the target A1c range.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
702	Requirements and Function of Nutrients and Other Food Components

Outcome #7

1. Outcome Measures

Chronic Disease Prevention - Number of adults participating in at least one session of the Healthy LIfestyles program who report one change in their food or fitness behavior after attending the program

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1360	77

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cardiovascular disease (CVD), hypertension, obesity, and cancer are major causes of morbidity, rising health care costs, and early deaths. In Virginia CVD leads to 126,000 hospital admissions annually, costing over $2.5 billion. Reducing admissions by 5% would in 5 years save nearly $750 million. About 35,000 new cases of cancer are diagnosed each year and over 13,000 people die. These conditions are prevented or ameliorated by a healthy diet, weight management, and regular physical activity.

What has been done

FCS agents cooperated with civic and faith based groups, health care facilities, government agencies, and employers to conduct educational programs to help Virginian's select and implement lifestyle behaviors that reduce chronic disease risk. Topics included planning the daily food pattern with appropriate levels of healthy fats, fiber, complex carbohydrates, whole grains, and fruits and vegetables, managing a healthy weight, and obtaining at least 30 minutes of physical activity on most days.

Results

Following completion of the program, over 90% of participants recognized the need for an annual eye exam, an annual foot exam, and a specialized blood test three to four times each year. At the first class 38% reported using a meal planning method to control their carbohydrate intake as compared to 74% following completion of the program. At the first class 73% reported at least 30 minutes of physical activity on most days as compared to 82% following completion of the program. The program measured hemoglobin A1c, an indicator of average blood sugar levels over the two months prior, and helped participants understand the importance of this test. Research shows that people with even small decreases in their A1c may require fewer physician visits in the years following and save at least $685 per year in health care costs. Overall 29% improved their diabetes management, 38% maintained their good diabetes management, and 14% moved from an unacceptable A1c range to the target A1c range.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
703	Nutrition Education and Behavior

Outcome #8

1. Outcome Measures

Chronic Disease Prevention - Number of older adults, volunteers, and staff members participating in the Eat Better Move More or other food and fitness program offered at senior centers and meal sites who improved their score on a healthy eating or fitness measurement three months after completion of the program

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

The numbers for this outcome were compiled in the outcome: Chronic Disease Prevention Number of adults participating in at least one session of the Healthy Lifestyles program who report one change in their food or fitness behavior after attending the program

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #9

1. Outcome Measures
Food Safety - Number of managers, supervisors, and food handling personnel from restaurants, public school and hospital cafeterias, daycare centers, nursing homes, university foodservice, correctional centers, and other foodservice industries who increase knowledge and skills in safe food handling practices

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	1006

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Center for Disease Control and Prevention (CDC) estimates that annually, 76 million people in the United States become sick with foodborne illnesses; 325,000 are hospitalized, and 5,000 die each year. Foodborne illnesses are typically caused by improperly prepared food. The economic cost of foodborne illness is estimated to be between $10 billion and $83 billion dollars per year. This equates to an estimated cost of approximately $131 to $1,092 per foodborne illness case.

What has been done

ServSafe(TM) a nationally recognized certification program teaches safe food handling practices and helps prevent foodborne illness outbreaks. In Virginia, the program is conducted by VCE and targets employees in food service establishments. In 2007, 13 family and consumer science agents conducted the ServSafe(TM) program throughout Virginia. To successfully complete the course, participants must score 75% or higher on the completion exam.

Results

During 2007, 1,006 (passing rate of 86%) food service employees successfully completed the ServSafe(TM) program across Virginia taught by FCS extension agents. Five hundred and twenty-nine restaurants, schools, caterers, and daycare centers sent employees to the program.
Seventy-six participants from three classes responded to a three to six month follow up survey, for a response rate of 23%. Of respondents, 87% adopted at least one new food safety practice. Of those who adopted a new food safety practice: 83% improved time and temperature practices, 68% made changes to prevent food contamination, and 90% made changes to personal hygiene practices
As a result of the ServSafe(TM) program in Virginia, $132,369 to $1,098,663 was potentially saved from pain and suffering, reduced productivity and medical expenses if one foodborne illness case per participant successfully completing the course was prevented across Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
711	Ensure Food Products Free of Harmful Chemicals, Including Residu

Outcome #10

1. Outcome Measures

Food Safety - Number of Virginia food producers and processors to implement (pre and post harvest) HACCP, quality assurance programs and processing technology that will provide for increased food safety and processing efficiency

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	295

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

HACCP is a leading food safety program in the United States. Implementation of this program is required by law for juice, meat and poultry, and seafood processors. This program is voluntary, but widely adopted, for other food processors such as dairy.

What has been done

In 2007, 20 juice processors were trained in Juice HACCP using the FDA approved curriculum. Additionally, manuals were developed that include approved curriculum and numerous reference documents. Bilingual HACCP training was provided for 275 individuals representing six companies focusing on safe production of seafood and juices.

Results

HACCP workshops aid processors by delivering the training required to support existing programs in their companies. Since HACCP is required by law for juice and seafood products, this education allows companies to be in compliance with federal and state regulations. These trainings have resulted in better understanding, application and monitoring of HACCP regulations and application of sanitation procedures. These trainings have become required attendance by the employees at some of the processing plants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
502	New and Improved Food Products
501	New and Improved Food Processing Technologies
711	Ensure Food Products Free of Harmful Chemicals, Including Residu
702	Requirements and Function of Nutrients and Other Food Components

Outcome #11

1. Outcome Measures

Food Safety - Number of home-based business entrepreneurs who are provided with assistance and training who increase awareness and knowledge in starting a food processing business

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	289

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Food processors in Virginia need guidance on formulation and regulation of their products to produce safe and wholesome food products in compliance with state and federal laws.

What has been done

Food products and processes are analyzed and recommendations are delivered to food processors. As a Process Authority for acidified foods, food processors receiving guidance can file required processing documents with the FDA. In the absence of this guidance, processors could not legally sell their products. Associated education included regulations for processed food products, formula and process modifications to comply with regulations or improve safety, and filing and maintenance of required documentation.

Results

During 2007, food products produced by 289 food businesses (92% Virginia based) were analyzed and recommendations provided. Of the products tested, 33 had a significant food safety issue that, left uncorrected, could result in unsafe food in the marketplace. Approximately 200 of these products had a significant quality issue that may have resulted in significant economic loss for the processor. For many of these products, VCE acted as an FDA recognized Process Authority and was instrumental in aiding Virginia Food Processors in correcting deficiencies. Without those corrections, these companies would have suffered severe enforcement actions from FDA including fines and injunctions. One company in danger of enforcement action has $500,000 income annually.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
711	Ensure Food Products Free of Harmful Chemicals, Including Residu
501	New and Improved Food Processing Technologies

Outcome #12

1. Outcome Measures

Food Safety - Number of consumers and at-risk populations, including civic/community groups, senior citizens, child care providers, youth, 4-H youth, Master Food Preservers, and volunteer cooks at fund-raising events, who increase their knowledge of foodborne illness, safe food handling practices, and food preservation

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	239

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Center for Disease Control and Prevention (CDC) estimates that annually, 76 million people in the United States become sick with foodborne illnesses with 325,000 hospitalized, and 5,000 that die each year. Foodborne illnesses are typically caused by improperly prepared food. The economic cost of foodborne illness is estimated to be between $10 billion and $83 billion dollars per year. This equates to an estimated cost of approximately $131 to $1,092 per foodborne illness case.

What has been done

Food safety training for nonprofit faith-based and civic organizations was provided to improve the quality of food safety and sanitation procedures of quantity food preparation personnel. The Cooking for Crowds curriculum was offered through Virginia Cooperative Extension family and consumer science agents.

Results

During 2007 a total of nine cooking for crowds programs were offered for occasional quantity cooks statewide. End of session surveys revealed 239 respondents indicated an increased knowledge of causes of food borne illness and food preparation skills. As a result of the Cooking for Crowds program in Virginia, $31,447 to $261,014 was potentially saved from pain and suffering, reduced productivity and medical expenses if one foodborne illness case per participant successfully completing the course was prevented across Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residu
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
724	Healthy Lifestyle

Outcome #13

1. Outcome Measures

Food Safety - Number of producers or marketers learning food protection principles

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	329

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Small, medium and large food processors in Virginia need guidance on formulation, processing, food safety programs and regulations regarding their products. Education in these areas ensures the production of safe and wholesome food products in compliance with state and federal laws. In addition, the implementation of effective front end food safety programs can reduce risk and increase the safety associated with various types of food products.

What has been done

For medium and large producers across the state food safety programming was provided to a wide range of audiences. This training includes Hazard Analysis Critical Control Point (HACCP) courses as well as Good Agricultural Practices (GAP's) and recall workshops for industry. For small producers, food products and processes wre analyzed through the Food Entrepreneurship Program, and recommendations for ways to improve their product were provided.

Results

In 2007, bilingual HACCP training was provided for 295 individuals focusing on safe production of seafood and juices. In addition to these trainings, Extension specialists met with tomato growers twice in 2007 and with VT scientists at the Eastern Shore AREC to address growing issues in tomato safety. The tomato growers gave positive feedback and like the team approach to solving a problem of great importance to Virginia agriculture. Recommendations provided to the growers align with the national GAP's program.

Food products produced by 289 small food businesses were analyzed and recommendations provided. Of the products tested, 33 had a significant food safety issue that, left uncorrected, may have resulted in unsafe food in the marketplace. Approximately 200 of these products had a significant quality issue that may have resulted in significant economic loss for the processor.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
711	Ensure Food Products Free of Harmful Chemicals, Including Residu

Outcome #14

1. Outcome Measures
Food Safety - Number of consumers and regulators learning food protection facts

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	1245

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Center for Disease Control and Prevention (CDC) estimates that annually, 76 million people in the United States become sick with foodborne illnesses: 325,000 are hospitalized, and 5,000 die each year. Foodborne illnesses are typically caused by improperly prepared food. The economic cost of foodborne illness is estimated to be between $10 billion and $83 billion dollars per year. This equates to an estimated cost of approximately $131 to $1,092 per foodborne illness case.

What has been done

To educate consumers in safe food handling, two different programs were provided through VCE: The "Cooking for Crowds" curriculum for individuals cooking for large quantities of people a few times a year (churches, fund raisers); and ServSafe, a nationally recognized certification program for food service establishments. A total of 1,245 individuals in Virginia attended one of these programs.

Results

End of session surveys revealed 100% of participants in the Cooking for Crowds program increased knowledge on the causes of food borne illness and food preparation skills. Eighty-six percent of food service employees completing ServSafe indicated significant gain in safe food preparation and handling. As a result of these two programs in Virginia, $163,095 to $1,355,940 was potentially saved from pain and suffering, reduced productivity and medical expenses if one foodborne illness case per participant successfully completing the courses was prevented across Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residu
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa

Outcome #15

1. Outcome Measures

Chronic Disease Prevention - Number of discoveries from completed obesity related research projects which focus on examining obesity from its root causes to its association with disease.

2. Associated Institution Types

- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

About two-thirds of the U.S. population is overweight and more than 30% is obese. Excess body fat increases the risk of cardiovascular disease, hypertension, and diabetes, major contributors to health care costs, loss of productivity, early mortality, and diminished quality of life. Obesity related illnesses place a significant burden on the economy and obesity is believed to account for as much as 9% of total health care expenditures and about 39.2 million lost work days each year.

What has been done

The etiology of obesity extends beyond energy imbalance to include genomic, molecular, cellular, and organ components that interact with individual preferences, family and community, work life, economics, and public policy. Virginia Tech scientists are examining obesity from its root causes to its association with disease. This interdisciplinary approach will enable the design of innovative and effective prevention and intervention programs that will have positive public health impact.

Results

Current research findings addressing the development and implications of obesity for health and well being include:
-Overweight in young and middle-aged men leads to respiratory and cardiovascular responses associated with obstructive sleep apnea
-More consistent eating patterns consisting of modest sized meals can reduce inflammation and cardiovascular risk among overweight and obese adults
-Increased water consumption in older adults decreases food intake and could be a strategy for weight loss or weight maintenance in this age group
-Changes in skeletal muscle in obese animal models leads to disordered glucose and fatty acid metabolism which contributes to dysregulation of whole body energy metabolism
-Neuronal transcription factor Nhlh2 appears to be a control of appetite and satiety in mouse models of obesity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
702	Requirements and Function of Nutrients and Other Food Components

Outcome #16

1. Outcome Measures

Number of raw food samples tested for increased internet purchase food safety.

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	272

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Center for Disease Control and Prevention (CDC) estimates that annually, 76 million people in the United States become sick with foodborne illnesses: 325,000 are hospitalized, and 5,000 die each year. Foodborne illnesses are typically can be caused by raw food. The economic cost of foodborne illness is estimated to be between $10 billion and $83 billion dollars per year. This equates to an estimated cost of approximately $131 to $1,092 per foodborne illness case. Internet products are sold across the country without necessarily going through conventional interstate distribution chains. This selling practice in general reduces the steps associated with getting products to consumers, however it may also bypass some inspection and testing programs traditionally established by buyer or government agencies.

What has been done

Virginia State University conducted a project that examines the microbial and chemical quality of raw meats, frozen beans, and honey sold through the internet for food saftey. In 2007 a total of 272 fillets consisting of aqua-cultured catfish, salmon, tilapia, and trout each from nine local and nine Internet retail markets were tested. The fillets had total aerobic mesophiles at 5.7 log CFU/g, psychotrophs at 6.3 CFU/g, and coliforms at 1.9 log MPN/g. Internet trout had about 0.8-log higher aerobic mesophiles than those pruchased locally. About 27% of the fillets had Listeria spp. and a positive correlation between the prevalences of Listeria and Listeria monocytogense was observed. Internet fillets had higher prevalence of both Listeria spp. and Listeria monocytogenes than those purchased locally.

Results

This study shows that Internet fish products are either equally or more likely to have excessive microbial contamination, including L. monocytogenes, than locally purchased fillets. Effective educational and/or regulartory interventions are needed to support the healthy development of this emerging market.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
711	Ensure Food Products Free of Harmful Chemicals, Including Residu
724	Healthy Lifestyle

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Competing Programatic Challenges

Brief Explanation

Vacant FCS agent positions in some counties and a vacant FCS specialist position have slowed some program efforts.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)

Evaluation Results

This past year a three to six month follow up survey for the ServSafe program was implemented with the following results:Seventy-six participants in ServSafe responded to a three to six-month follow-up survey, 87% adopted at least one new food safety practice. Of those who adopted a new food safety practice, • 83% improved time and temperature practices• 68% made changes to prevent food contamination• 90% made changes to personal hygiene practices

Key Items of Evaluation

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Animals and Animal Products

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	10%	10%	10%	10%
302	Nutrient Utilization in Animals	15%	15%	15%	15%
303	Genetic Improvement of Animals	10%	10%	10%	10%
305	Animal Physiological Processes	10%	10%	10%	10%
307	Animal Management Systems	15%	15%	15%	15%
308	Improved Animal Products (Before Harvest)	10%	10%	10%	10%
311	Animal Diseases	15%	15%	15%	15%
312	External Parasites and Pests of Animals	5%	5%	5%	5%
313	Internal Parasites in Animals	5%	5%	5%	5%
315	Animal Welfare/Well-Being and Protection	5%	5%	5%	5%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	29.7	4.0	21.6	2.0
Actual	38.8	3.0	21.6	2.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
691157	142121	700213	682764
1862 Matching	1890 Matching	1862 Matching	1890 Matching
801448	284241	1632772	588400
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2188842	5800	5717199	3405

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research experiments, conduct workshops, meetings, and trainings, develop publications, curriculum, and resources, provide consultation, leadership, and facilitation, partner with industry, and conduct needs assessment and impact.

2. Brief description of the target audience

The target audience includes animal owners, youth, Extension educators, allied industry personnel, consumers, policy makers, and academic colleagues.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	85000	250000	30000	60000
2007	97180	291598	21406	64231

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	31	47	78

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational meetings, workshops, conferences, training sessions, and field days

Year	Target	Actual
2007	840	643

Output #2

Output Measure

- Number of fact sheets, publications, newletters, and other print resources

Year	Target	Actual
2007	3000	756

Output #3

Output Measure

- Number of web sites, applications, modules

Year	Target	Actual
2007	50	40

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Percent increase in beef cattle marketed through value-added programs
2	Number of additional beef producers trained and certified for quality assurance/best management practices
3	Percent of participating farms reducing phosphorus over previous year in dairy animal waste
4	Percent of dairy herds improving milk quality
5	Number of swine producers receiving continuting education credit for wast management permits requirements
6	Number of youth gaining knowledge related to animal agriculture through youth animal projects and events
7	Percent increase in sheep population in Southwest Virginia

Outcome #1

1. Outcome Measures

Percent increase in beef cattle marketed through value-added programs

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	9

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Adding value to Virginia's beef cattle operations is critical to sustainability of Virginia agriculture and rural communities. Adopting improved health, management, and marketing practices for Virginia feeder cattle will add value to the Commonwealth's second largest agricultural commodity.

What has been done

Virginia Cooperative Extension partnered with the Virginia beef industry to develop a program which encourages the use of scientifically-based cattle health and management procedures for feeder cattle. The VQA program is a cooperative effort among the Virginia Cattlemen's Association, Virginia Department of Agriculture and Consumer Services, VA-MD Regional College of Veterinary Medicine, VCE, and producer organizations. Producers that handle their cattle in this manner are eligible to market their calves through the VQA certified feeder cattle program.

Results

In 2007,14,098 calves were marketed through the VQA program. The number of calves marketed was increased by 8.5% compared to 2006. Producers received a premium of $34.92 per calf resulting in $492,388 of additional income for Virginia beef producers. Over the ten years of the VQA program, producers have marketed over 78,000 head of feeder cattle resulting in $ 2.35 million in value-added income.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
303	Genetic Improvement of Animals

Outcome #2

1. Outcome Measures

Number of additional beef producers trained and certified for quality assurance/best management practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	125	438

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Virginia Beef Quality Assurance Program (BQA) educates and certifies beef producers in best management practices to improve the safety and quality of beef. The program provides information to beef producers on coupling animal management techniques with accepted scientific knowledge to raise cattle under optimum management and environmental conditions. BQA guidelines enhance trust and confidence in the entire beef industry.

What has been done

The Virginia BQA is a founding member of the Mid-Atlantic BQA , an eight state consortium of Extension and industry personnel that work together to create similar training materials and programming across the region. The National BQA Guidelines and the National Manual for all cattle producers (beef and dairy) outline areas of cattle management and record keeping. These guidelines are updated periodically to reflect new information, technologies, and regulations.

Results

In 2007, 438 beef producers obtained initial certification. This brings the total number of certified producers in Virginia to 4,226 which makes Virginia one of the national leaders in BQA. Certification is achieved by producers through participation in intensive educational sessions conducted by local Extension agents. BQA certification is necessary for producer participation in value-added marketing opportunities. Producers from 50 counties in Virginia participated in BQA certification in 2007.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
315	Animal Welfare/Well-Being and Protection
307	Animal Management Systems
303	Genetic Improvement of Animals

Outcome #3

1. Outcome Measures
Percent of participating farms reducing phosphorus over previous year in dairy animal waste

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Water quality is a significant issue in the Mid-Atlantic especially in the Chesapeake Bay drainage area. Phosphorus is a nutrient of concern by federal and state agencies. Reduction of phosphorus excretion results in less potential for pollution due to water runoff from fields.

What has been done

In 2007 the Phosphorus Feeding Incentive Program grew to 215 herds or 29% of Virginia dairy farms. There were 1,941 feeds analyzed for a value to the dairy industry of $44,015. In addition, in the herds that completed enough samplings in 2007 there were 66 farms that qualified to receive $49,162 in incentive payments.

Results

In the herds that completed their first year in 2007, there was a reduction of phosphorus fed of 109 lbs. per day from the beginning to the end of the year. If this level is maintained, it would result in 39,759 lbs. or 19.9 tons less phosphorus fed and excreted in the coming year in the 18,994 cows in these groups. There are other groups that will complete their first year in 2008.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
307	Animal Management Systems

Outcome #4

1. Outcome Measures

Percent of dairy herds improving milk quality

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The improvement in milk quality affects all aspects and areas of the industry, starting with the producer and ending with the consumer. The producer sees the benefit in increased production and achieving quality bonuses leading to an increase in profitability. The higher quality milk leads to an increased shelf life and improvement in flavor, both affecting the processor and the consumer.

What has been done

We conducted workshops with dairy farmers where milk samples from individual cows in multiple herds were cultured in our mastitis laboratory. The workshops have increased awareness of the value of milk culturing and the information provided by individual quarter samples from cows suspect for mastitis. Results are used to make treatment and culling decisions within each herd.

Results

Milk culture workshops included 41 dairy herds across the state in 2007. Of that number, a minimum of 8 (19%) decreased bulk tank somatic cell counts, reduced primary incubation counts and/or fewer cases of clinical mastitis. We have observed a decrease in the bulk tank somatic cell count, decrease in the preliminary incubation count and/or a decrease in the rate of new clinical mastitis cases. All of which will increase production and increase the quality of the milk leaving the farm, in turn affecting long term profitability of the dairy operation in a very unstable market.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

Outcome #5

1. Outcome Measures

Number of swine producers receiving continuting education credit for wast management permits requirements

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

State regulations dictate that all swine producers maintaining a no-discharge permit are required to receive periodic continuing education in manure management and environmental protection. The Extension Swine Specialist collaborates with the Virginia Department of Conservation and Recreation (DCR) in developing and delivering this continuing education program. The training is essential for large producers to maintain their permits and stay in compliance with environmental regulations.

What has been done

Two continuing education sessions were held; one focusing on swine (Nov. 1) and a second focusing on Dairy (Nov. 15). Both sessions also included continuing education for certified nutrient management planners. A waste management field day was also conducted with the major swine integrator in Virginia at a contract swine finishing farm. Educational focus at all of these programs included bio-secure animal mortality disposal and manure application.

Results

In 2007, 55 additional producers received continuing education credits. A direct impact of the continuing education programs has been the ability of producers holding waste management permits to maintain those permits and operate their farms in an environmentally sound manner. Indirectly these and related programs have facilitated approval of swine dead stock composting as a best management practice eligible for state and federal conservation cost-share programs and resulted in reduction in use of burial for dead stock disposal. Composting units for environmentally sound dead stock disposal have been constructed on several large swine farms. Also in 2007 the major swine production integrator in Virginia began promoting mortality composting technology among their contract swine producers using guidelines and educational material generated in the program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #6

1. Outcome Measures

Number of youth gaining knowledge related to animal agriculture through youth animal projects and events

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	32000	29827

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock projects (beef, sheep, swine, dairy, equine, poultry) and events provide a vehicle for educating youth about the importance of animal agriculture to society and are instrumental in developing life skills in youth. Participation in youth livestock projects serve as a foundation for stimulating career choices in agriculture, and provide a vehicle for the dissemination of knowledge to the public.

What has been done

Training of youth occurs locally by Extension Agents, Volunteer 4H Leaders, and Agriculture Educators. State contests are coordinated by campus-based Extension specialist faculty with assistance of Extension Agents and volunteers, and agriculture educators. Comprehensive competition is held at the state level for youth age 9-19. In these events, youth are asked to evaluate quality, identify items, rank groups of items, perform calculations, and justify their decisions to others.

Results

Youth participation in animal projects and embryology totaled 25,563 in 2007. An additional 4,304 youth participated in state level contests. In these events, youth are asked to evaluate quality, identify items, rank groups of items, perform calculations, and justify their decisions to others. Preparation for the contests fortifies student skills and abilities. Ability to observe and evaluate, ability to make decisions, and communication skills are enhanced by the students' participation in these events. A Livestock Quality Assurance Program was initiated in Loudoun County to educate and certify youth producers in best management practices that improve the safety and quality of livestock projects with 37 youth producers obtaining initial certification in 2007. Numerous educational programs were held for youth. Post-program course evaluations indicated that participants increased their knowledge of record keeping by 55%, animal health by 60%, and proper animal selection by 72%.

4. Associated Knowledge Areas

KA Code	Knowledge Area
305	Animal Physiological Processes
303	Genetic Improvement of Animals
307	Animal Management Systems
301	Reproductive Performance of Animals
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
302	Nutrient Utilization in Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

Outcome #7

1. Outcome Measures

Percent increase in sheep population in Southwest Virginia

2. Associated Institution Types

•1862 Extension
•1862 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Declining burley tobacco production has resulted in economic losses to local communities in Southwest Virginia. With a prime climate, suitable topography, and an abundance of forage the region is well suited for livestock production systems as an alternative to tobacco.

What has been done

Research and Extension efforts at the Southwest Agricultural Research and Extension Center demonstrated the profitability and utility of hair sheep in low-input, easy-care production systems. Results of this research have been disseminated throughout the region through field days, publications, and demonstrations.

Results

Sheep numbers in Southwest Virginia increased 5% in 2007 according to USDA. With the renewed interest in sheep, Virginia Cooperative Extension assisted local sheep producers with production and marketing endeavors. A partnership between local producers and a regional retail grocery chain was formed. Sales to the local grocery chain increased from 116,000 pounds sold to over 225,000 pounds sold. As a result, over $650,000 of lamb was purchased from approximately 55 local producers in 2007 resulting in an additional $41,000 value being returned to producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Populations changes (immigration,new cultural groupings,etc.)
- Other (land values near urban areas)

Brief Explanation

The entire state of Virginia was affected by severe drought in 2007. As a result, significant effort by Extension agent and specialist staff was dedicated to providing programming related to drought strategies for livestock producers. The time, effort and resources dedicated to drought management likely had an impact on other programming areas.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Time series (multiple points before and after program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparison between locales where the program operates and sites without program intervention

Evaluation Results

Key Items of Evaluation

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Biotechnology and Genomics

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	20%	0%	20%	0%
202	Plant Genetic Resources	20%	0%	20%	0%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plar	10%	0%	10%	0%
206	Basic Plant Biology	20%	0%	20%	0%
212	Pathogens and Nematodes Affecting Plants	10%	0%	10%	0%
722	Zoonotic Diseases and Parasites Affecting Humans	20%	0%	20%	0%
	Total	100%	0%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	10.0	0.0
Actual	0.8	0.0	10.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
15141	0	15340	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
17557	0	35769	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
47951	0	2646852	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Dissemination of research results, papers and citations, development and implementation of educational programs / workshops, conduct research experiments, conduct meetings, and establish and sustain partnerships.

2. Brief description of the target audience

Commercial producers (crop and livestock), state and federal agencies, research scientists, and high school teachers.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	250	2500	1500	10000
2007	147	8	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	2
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	76	76

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects in program areas

Year	Target	Actual
2007	5	57

Output #2

Output Measure

- Number of peer reviewed research papers published

Year	Target	Actual
2007	10	66

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of silviculturalists, aquaculturalists, and fisheries and wildlife managers learning advanced management methods
2	Number of participants gaining biotechnology knowledge
3	Number of high schools integrating biotechnology into their curricula
4	Number of samples evaluated by current and improved plant diagnostics methods leading to better detection and control procedures by producers
5	Number of crop cultivars (e.g., barley, potato, soybean, wheat) released, DNA markers identified, and genes discovered all in part with the involvement of biotechnology and genomics
6	Number of partnerships established among high school students, their teachers,and research scientists to increase awareness and interest in biotechnology
7	Number of crop cultivars/varieties (e.g., barley, soybean, tobacco, wheat) released

Outcome #1

1. Outcome Measures

Number of silviculturalists, aquaculturalists, and fisheries and wildlife managers learning advanced management methods

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	30	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

No data collected this year

4. Associated Knowledge Areas

KA Code	Knowledge Area
206	Basic Plant Biology

Outcome #2

1. Outcome Measures

Number of participants gaining biotechnology knowledge

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	350

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Citizens lack the knowledge to make informed decisions about biotechnology, research results need to be brought to a variety of audiences.

What has been done

A primary venue for biotech research at Virginia Tech is the Fralin Biotechnology Center's well developed pre college outreach program, especially the Partnership for Research and Education in Plants (PREP; www.prep.biotech.vt.edu). PREP brings together high school teachers and research scientists to guide high school students in characterizing genes in Arabidopsis thaliana, a plant used widely in genetic research and one of the few plants whose genome has been sequenced. Scientists provide wild type (no altered genes) and mutant (one disabled gene) seeds and experimental know how to students, and students design experiments to examine the effects of abiotic stressors (e.g., drought, salinity, soil pH, etc.) on wild type versus mutant plants, thereby helping to determine the function of each missing gene.

Results

Through PREP and similar education efforts, scientists developed a cohesive research program that will yield comprehensive insights into the integration of science and education by investigating:1.)how and in what ways research collaborations among high school students, their teachers, and scientists serve as complex, social, and situated environments for fostering students' acquisition of scientific reasoning skills, and 2.) How and in what ways these collaborations serve as mechanisms for legitimate peripheral participation by students and teachers in the scientific community and by scientists in the pre college learning community.

This research and related programs are funded primarily by the National Institutes of Health (NIH) and National Science Foundation ($500,000 in 2007; more than $2.0 million to date).

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
206	Basic Plant Biology
722	Zoonotic Diseases and Parasites Affecting Humans

Outcome #3

1. Outcome Measures

Number of high schools integrating biotechnology into their curricula

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

Did not measure this year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

Outcome #4

1. Outcome Measures

Number of samples evaluated by current and improved plant diagnostics methods leading to better detection and control procedures by producers

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1200	1386

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Accurate diagnosis of plant disease is essential for implementing appropriate disease control tactics.

What has been done

Plant disease clinics serve as a support laboratory for VCE agents.

Results

The VT plant disease clinic provided diagnoses and control recommendations for 1,386 plant samples. One hundred and one out of 107 VCE unit offices utilized these services. Average response time for results was 5.5 days.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #5

1. Outcome Measures

Number of crop cultivars (e.g., barley, potato, soybean, wheat) released, DNA markers identified, and genes discovered all in part with the involvement of biotechnology and genomics

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Worldwide, major crop loss due to pathogens is estimated to be in tens of billions of dollars annually. Development of cultivars possessing multiple resistance genes for a given disease is very difficult using conventional breeding methods as the resistance conferred by one gene masks the expression of other genes. Thus, it is difficult to distinguish whether a plant has one or more resistance genes based solely on disease reaction.

What has been done

Development of resistant crop plants is the most practical and environmentally friendly solution for addressing disease problems. However, detailed information on inheritance, number and chromosomal locations of disease resistance genes is a prerequisite for efficient resistance breeding programs. Although conventional approaches have been successful in this arena, there are some limitations, especially in breeding for complex diseases that are controlled by several genes. The advent of molecular marker technology and the availability of dense linkage maps have provided opportunities for tagging genes or QTLs (Quantitative Trait Loci) controlling resistance to complex diseases.

Results

Genes Rph5 and Rph7 conferring leaf rust resistance in barley are located in close proximity to one another on the same chromosome. As these resistance genes originated in different barley parents, it is very difficult using conventional breeding methods to combine them in a new line. DNA markers very close to gene Rph5 were identified and developed at Virginia Tech. These and other markers for gene Rph7 were used to characterize leaf rust resistant barley lines for the presence of one or both genes. One barley line VA04H 95 was postulated to possess both Rph5 and Rph7. DNA markers for these resistance genes will allow plant breeders to combine both resistance genes in a single variety. No new crop cultivars have yet been released.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

Outcome #6

1. Outcome Measures

Number of partnerships established among high school students, their teachers,and research scientists to increase awareness and interest in biotechnology

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The public needs opportunities to understand biotechnology and the implications of biotechnolgies. Scientists need to expand mechanisms for communicating current research to nontechnical audiences.

What has been done

Partnerships between university scientists and high school educators and students have been established.

Results

The Partnership for Research and Education in Plants involves high school students, their teachers, and life scientists in research collaborations that:
1. Engage high school students in learning standards based concepts in biology and scientific inquiry
2. Enable scientists to broaden the impact of their research.
Approximately 2,000 students in Arizona, Colorado, Iowa, Missouri, Virginia, and Wisconsin participate annually in PREP (of the 10,000 students who have participated since its inception, 12% are African-American, 5% Asian, 3% Native American, 71% Caucasian; 19% Hispanic or Latino, 75% non Hispanic).

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
206	Basic Plant Biology

Outcome #7

1. Outcome Measures

Number of crop cultivars/varieties (e.g., barley, soybean, tobacco, wheat) released

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

No new crop cultivars were released this year through this planned program. Four were released through the plants and plant products planned program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy

Brief Explanation

Insufficient research funding

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- Time series (multiple points before and after program)
- Case Study

Evaluation Results

Key Items of Evaluation

Program #6

V(A). Planned Program (Summary)

1. Name of the Planned Program

Natural Resources and Environment

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	10%	10%	10%	10%
102	Soil, Plant, Water, Nutrient Relationships	10%	10%	10%	10%
104	Protect Soil from Harmful Effects of Natural Elements	10%	10%	10%	10%
111	Conservation and Efficient Use of Water	10%	10%	10%	10%
112	Watershed Protection and Management	10%	10%	10%	10%
123	Management and Sustainability of Forest Resources	10%	10%	10%	10%
124	Urban Forestry	10%	10%	10%	10%
131	Alternative Uses of Land	10%	10%	10%	10%
133	Pollution Prevention and Mitigation	10%	10%	10%	10%
135	Aquatic and Terrestrial Wildlife	10%	10%	10%	10%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	32.5	1.0	23.6	0.9
Actual	27.4	2.0	23.6	0.9

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
487195	252600	493578	132964
1862 Matching	1890 Matching	1862 Matching	1890 Matching
564938	505200	1150936	378638
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1542908	106200	6246570	246127

V(D). Planned Program (Activity)

1. Brief description of the Activity

Develop and deliver educational programs such as short courses, workshops, field days and tours, and seminars, conduct applied research and link with Extension, develop and maintain demonstration areas, develop collaborative partnerships with government officials, state agencies, and non-governmental organizations, develop and disseminate educational materials such as Extension bulletins, journal articles, conference proceedings, trade journal articles, and DVD's, and develop and maintain web-based educational materials such as short courses, web sites, and discussion boards.

2. Brief description of the target audience

Farmers, forest owners, loggers, Christmas tree growers, youth, homeowners, mill owners and workers, private consultants and companies, local governmental officials, waste water treatment operators, state and federal agencies, nongovernmental organizations, professional associations and societies, and communtiy groups.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

Year	Direct Contacts Adults Target	Indirect Contacts Adults Target	Direct Contacts Youth Target	Indirect Contacts Youth Target
Plan	500000	500000	5000	5000
2007	69544	213117	20040	61412

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	35	58	93

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational programs offered

Year	Target	Actual
2007	2000	976

Output #2

Output Measure

- External contract and grant funds received

Year	Target	Actual
2007	1500000	4563343

Output #3

Output Measure

- Number of educational materials and curriculas developed

Year	Target	Actual
2007	25	25

Output #4

Output Measure

- Number of applied research projects

Year	Target	Actual
2007	15	81

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of individuals with increased knowledge of best management practices in forestry or agriculture
2	Number of individuals with increased knowledge of sustainable landscape practices
3	Number of individuals adopting at least one improved management practice toward achieving sustainability
4	Number of individuals adopting one or more sustainable landscape managment practices
5	Number of mills reporting increased profitability, improved safety indicators, or improved efficiency
6	Number of agricultural or forest acres with improved management practices

Outcome #1

1. Outcome Measures

Number of individuals with increased knowledge of best management practices in forestry or agriculture

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	500	14000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Sixty-one percent of Virginia is forested (15.8 million acres). Between 2001-2004, this acreage decreased by 26,000 acres a year. Current estimates predict Virginia will lose over a million acres of forestland in the next 25 years. Of the 15.8 million acres of forestland, 13.0 million acres is privately owned. The single largest category of owners is the 384,000 individuals or families who own in excess of 10.1 million acres. While family ownership ranges from a few acres to a few thousand acres, most parcels are relatively small. About half of the land owned by families is in parcels of 75 acres or less. Many of these owners have little or no experience with forest management, however proper management is essential to the health and productivity of Virginia's forests, and needed to ensure a sustainable stream of forest-related products.

What has been done

To ensure these forest parcels are well-managed and provide a sustainable stream of needed forest resources, the Virginia Forest Landowner Education Program's Short Course Series was developed. The five courses in this series provide in-depth information on woodland management, wildlife management, financial assistance, sustainable timber harvesting and marketing, and forest and farmland conservation strategies. The target audience for these courses were non-industrial private landowners with little or no forest management experience. Short courses range from 6-12 hours of classroom instruction with a field tour to apply concepts.

Results

In 2007, 466 students, owning over 4,000 forested acres, attended one of 11 short courses coordinated through the Virginia Forest Landowner Education Program. These students stated these courses would help them earn over $300,000 additional dollars from forest management activities. Additionally, over 65% indicated they would seek professional forest management assistance in the future. A one year follow-up evaluation is being developed to determine how many students follow through on these actions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
112	Watershed Protection and Management
124	Urban Forestry
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
102	Soil, Plant, Water, Nutrient Relationships
101	Appraisal of Soil Resources
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife

Outcome #2

1. Outcome Measures

Number of individuals with increased knowledge of sustainable landscape practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	250000	10000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

By 2010, Virginia is committed to making significant reductions of sediment, nitrogen, and phosphorus to the Chesapeake Bay waters. The tributary strategies developed for each major watershed are counting on agriculture to provide the largest share of reductions because pound for pound, agriculture can do it more efficiently.

What has been done

New Kent/Charles City VCE, in partnership with the Colonial Soil and Water Conservation District, secured funds to conduct a rainfall simulation study on a field in continuous no-till production for 10 years in corn, wheat and double crop soybean rotation. The study simulated a 2" per hour rainfall event on both undisturbed long term no-till soil versus newly tilled soil at which time water samples from runoff were collected and analyzed. The undisturbed long-term continuos no-till plots reduced water runoff by 74%, reduced sediment loss by 99% (3,100 lbs. from tilled plots versus 18 lbs. from no-till plots), reduced Nitrogen loss by 94%, and reduced phosphorus loss by 92%. Additional funds were secured to measure water and nutrient movement down through the soils of both long-term no-till and tilled soils, to see if the nitrogen and phosphorus were leaching through the soil with the water that infiltrated instead of running off. This study showed the increase in soil organic matter,over time, in the top two inches of soil (1% in tilled soil versus 2% in long-term no-till soil) in long-term no-till soil was able to bind the nitrogen and phosphorus making it available for plant uptake. Other research plots using winter annual small grains and legumes showed that timely fall planting of rye or rye + hairy vetch could make six tons of dry matter per acre that would be recycled to help build soil organic matter. The nitrogen uptake from the rye cover exceed 120 lbs. per acre and 250 lbs. per acre with the rye + hairy vetch, and hairy vetch alone. This nitrogen, taken up by the winter annual cover crops, was removed from potential soil leaching losses and made available for the next crop.

Results

The results from the three year cover crop study helped promote the State Best Management Practices(BMP) Cover Crop Cost-share Program in New Kent and Charles City Counties. Cover crop acreage in these counties went from 200 acres in 2004 to over 2,500 acres in 2005, 2006, and 2007. At 100 lbs. nitrogen uptake per acre over 7,500 acres (three years) means 750,000 lbs. of nitrogen were removed from the soil profile vunerable to leaching and runoff losses.

In 2000, the Northeast Extension District had less than 10,000 acres in continous no-till crops. By 2007, a survey showed the Northeast Extension District had increased to over 280,000 acres (83%) of total grain cropland in continous no-till. During the same time period the statewide continuous no-till crop acreage increased from 5% to 41% (440,000 acres).

Long-term continuous no-till cropping is proven to increase soil organic matter, trap nitrogen, prevent erosion, and help ground water recharge 24/7 while improving soil and water quality. A quote in the Progressive Farmer magazine from an area long-term continuous no-till wheat farmer, "In 10 years we have improved this soil, and this has been a big change. I am absolutely using less nitrogen on wheat. I've cut back at least 50 pounds of nitrogen per acre."

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
104	Protect Soil from Harmful Effects of Natural Elements
124	Urban Forestry
111	Conservation and Efficient Use of Water

Outcome #3

1. Outcome Measures

Number of individuals adopting at least one improved management practice toward achieving sustainability

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	250	1000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Threats to Virginia's forests, waterways, and wildlife have raised concerns about enhancing the conservation and management of our natural resources. Public involvement is needed to expand our natural resource agency workforce to complete more projects to maintain, restore, and monitor natural resources and to educate adults and youth about woods, wildlife, and water.

What has been done

The Virginia Master Naturalist program, a corps of well-informed volunteers provide education, outreach, and service dedicated to the beneficial management of natural resources and natural areas within their communities for the Commonwealth of Virginia. In 2007, the program expanded from 10 chapters to 21 chapters in communities around the state. Each chapter recruits and trains volunteers and works with partners to create and coordinate volunteer service opportunities. The training consists of a minimum of 40 hours of classroom and field time covering a core set of curriculum objectives in ecology, natural resource management, basic natural history of animals and plants of Virginia, and skills for teaching and field research. To become a certified Virginia Master Naturalist, each volunteer must also complete 40 hours of service in education, citizen science, or stewardship.

Results

In 2007, Virginia Master Naturalist chapters held 23 basic training courses. Currently there are more than 600 Virginia Master Naturalist volunteers, 84 of whom have completed the requirements to become Certified Virginia Master Naturalists. By the end of 2007, these volunteers accomplished approximately 10,000 hours of education, citizen science, and stewardship service, valued at $186,900 (Independent Sector Report for Virginia, 2005). Their educational programs reached more than 9,000 youth and adults, and their on-the-ground efforts have positively impacted many acres of land and miles of trails. Some specific projects accomplished by Virginia Master Naturalist volunteers included leading nature-based 4-H clubs and other educational programs for youth, developing interpretive trails, conducting tree surveys, monitoring frog, bird, and other wildlife populations, and removing invasive plant species from public lands.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife
101	Appraisal of Soil Resources
123	Management and Sustainability of Forest Resources
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
124	Urban Forestry
102	Soil, Plant, Water, Nutrient Relationships
131	Alternative Uses of Land
111	Conservation and Efficient Use of Water

Outcome #4

1. Outcome Measures

Number of individuals adopting one or more sustainable landscape managment practices

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200000	50000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agricultural land uses in Grayson County account for 46% of total land use including animal agriculture, Christmas trees, and pumpkin production. Due to the elevation and steep slopes, much of the land is highly erodable. Negative impacts of erosion on water quality have been well documented. Less emphasized is the lower productivity of eroded soils due to nutrient loss. One best management practice often suggested is continuous no-till practices for corn grown for livestock and on land used for pumpkins. The goal of this system is to limit bare earth exposure. Most farmers adopting this system have noted productivity improvements with little explanation why. Also, producers seek ways to improve systems to lead to greater agricultural and environmental sustainability.

What has been done

Virginia Cooperative Extension partnered with the New River Soil and Water Conservation District and USDA Natural Resources Conservation Service to demonstrate no-till cropping. The demonstration included residue crimping as an emerging alternative to herbicide treatment of winter cover crops. The first demonstration was conducted in early May on corn grown for dairy cows. The second occurred in June on a commercial pumpkin farm. A portion of the first workshop included a comparison of soils subjected to a rainfall simulation under either continuous tillage or no tillage.

Results

Attendees learned how tillage practices contributed to soil erosion through the loss of organic matter. Attendees learned that no-till practices minimize organic matter and nutrient losses, and that by preventing these losses, soil productivity could be improved. One farmer stated that adopting no-till practices was not a choice, but a necessity on steep farm land. Farmers also evaluated the practicality of the crimper-roller for controlling winter cover crops prior to spring planting. It was found to be more viable for pumpkins than corn. Because these farms were above 2,600 feet elevation, the growing season did not allow winter cover crops such as rye or wheat to be mature enough for effective control with the crimper-roller on corn land. It was also significantly more time consuming than herbicide treatment. The crimper-roller showed promise on pumpkin land because pumpkins are planted a month later than corn, giving winter cover crops more time to mature, which is critical for effective control. This practice was used on a trial basis by one large commercial pumpkin grower, eliminating herbicide treatment in the trial area.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
131	Alternative Uses of Land
111	Conservation and Efficient Use of Water
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
133	Pollution Prevention and Mitigation
123	Management and Sustainability of Forest Resources

Outcome #5

1. Outcome Measures

Number of mills reporting increased profitability, improved safety indicators, or improved efficiency

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In 2007, Virginia's forests contributed $30 billion annually to the economy, and supported the single largest manufacturing industry in the state, ranking first in employment, wages and salaries. In addition to the direct economic impact, Virginia's forests contribute to the state in other ways, including protection of water quality. Virginia's logging contractors are essential to providing raw materials to Virginia's forest industry as well as protecting water quality during forest harvesting. Many Virginia forest products companies require logging contractors to complete Sustainable Harvesting and Resource Professional (SHARP) Logger training as a condition of a wood supply business relationship.

What has been done

The Virginia SHARP Logger Program provides training to Virginia's loggers in sustainable forestry, workplace safety, and environmental protection. In addition to the three part core program that loggers must attend to complete the initial training, loggers must attend 12 hours of continuing education every three years to maintain their current SHARP Logger status.

Results

Since the program began in 1996, over 3,000 individuals have completed the core program to become SHARP Loggers. These trained loggers represent the vast majority of wood produced in the state. In 2007, the three part core SHARP Logger program was offered in four locations, and 46 continuing education classes were offered throughout the state. One thousand forty-five individuals attended at least one program to receive SHARP logger credit during 2007. In total these individuals received nearly 9,000 hours of SHARP Logger training in 2007.

Programs such as the SHARP Logger have had a great impact on safety, productivity, and profitability. In other VCE programs, over 1,200 individuals participated in events to increase the economic vitality of Virginia. Another 5,000 individuals indirectly increased their awareness of the importance of the forest products industry to Virginia. Over 225 community leaders were impacted and increased their awareness of opportunities for Virginia. At least nine new businesses were created or expanded due to these efforts resulting in over 1.5 million dollars in additional revenue for the businesses. One major wood produtcs employer has the potential to add over 1,000 jobs in southside Virginia by the year 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
123	Management and Sustainability of Forest Resources
112	Watershed Protection and Management
124	Urban Forestry

Outcome #6

1. Outcome Measures

Number of agricultural or forest acres with improved management practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50000	80000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Current research indicates a loss of Virginia forestland to land use changes at an estimated 26,000 acres per year, and Virginia farmland at over 80,000 acres per year. Nottoway County is ranked fourth in the state for total stumpage harvest value income of over $7,250,000 annually. The Virginia Forest Landowner Education Program (VFLEP) developed a short-course in 2006 entitled "Forest and Farmland Conservation Strategies" to assist landowners and community leadership with decisions related to prevalent change in land use to development. Land use concerns remain a common theme in Extension situation analysis and have been observed as a constant news item that citizens expect local leadership to take action on.

What has been done

Virginia Cooperative Extension partnered with the Old Dominion Resource Conservation and Development Council to offer a short course entitled "Forest and Farmland Conservation Strategies." A Conservation Planning committee was created consisting of both the Regional and Assistant Regional Foresters in Region 4, the Old Dominion RC&D forester, the VFLEP coordinator, and the Coordinator for Old Dominion RC&D. Although the course was specifically designed for landowners in mind, the committee offered the program to the local Board of Supervisors, County planning commissioners, CPA's, natural resource professionals, educators and interested citizens. Over 425 letters were mailed to this group and the program was announced in four area newspapers and the state FLEP mailing list for the region around Nottoway. The public was invited to attend.

Results

The seven hour workshop held at the Blackstone Southern Piedmont Research Station had 30 participants representing local leadership and conservation groups. The participants indicated on a pre-course evaluation the following: 31% had owned land for 0-5 years, 23% from 6-10 years, none in the 11-25 bracket, less than 1% from 25-49 years, and 38% owning the land for over 50 years. This is typical of rural farmland ownership statistics. The largest farm was 1,900 acres and the smallest four acres with the average farm 268 acres. Comments from participants on exit evaluations included:"Excellent presentation of options and resources, thank you."; "Increased my knowledge of zoning and land use issues"; "Course was well planned and informative"; "..will be able to provide information to the citizens"; "Great job!"; "Great information!"; "Best workshop I have attended"; "..helped me further knowledge of resources and contacts"; "Excellent job of packing a wealth of information into a day-long course, competent presenters and a good oration." Participants were given comprehensive resource notebooks at the course.

For other programs offered, over 650 individuals indicated they implemented at least one new practice due to the training and it is estimated that over 42,000 acres were impacted, resulting in over one million dollars earned or saved due to changes in land management practices. Over 300 individuals directly participated in wildlife training, while another 5,000 were indirectly touched by VCE efforts. There were two management plans for wildlife/fisheries developed from these efforts impacting 15,000 acres and resulting in $80,000 additional income or savings to participants. Of the 12 educational events targeting invasive species, 293 participants increased their awareness and another 20,000 indirectly increased their awareness of the subject. Over 100 landowners implemented at least one new practice to reduce the spread or eliminate invasive species on their land impacting nearly 4,000 acres with a savings of over $200,000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
111	Conservation and Efficient Use of Water
123	Management and Sustainability of Forest Resources
124	Urban Forestry

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy

Brief Explanation

The entire Commonwealth was designated as a disaster area due to the drought. The slowing economic conditions have had a great impact on the forest products industry in the state.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

Evaluation Results

The outputs from the programs and consultations offered led to over 50 individuals trained to develop forest stewardship plans, 2,000 direct contacts and nearly 12,000 individuals who were indirectly contacted that indicated they increased their awareness of the benefits and opportunities of having a plan. Twenty-five stewardship plans were implemented from the efforts of individuals supported with RREA funding. Over 650 individuals indicated they implemented at least one new practice due to the training and it is estimated that over 42,000 acres were impacted, resulting in over one million dollars earned or saved due to changes in land management practices. Over 300 individuals directly participated in wildlife training, while another 5,000 were indirectly touched by VCE efforts. There were two management plans for wildlife/fisheries developed from these efforts impacting 15,000 acres and resulting in $80,000 in income or savings to participants. Of the 12 educational events that targeted invasive species, 293 direct contacts increased their awareness and another 20,000 indirectly increased their awareness of the subject. Over 100 landowners implemented at least one new practice to reduce the spread or eliminate invasive species on their land impacting nearly 4,000 acres with a savings of over $200,000. Over 1,200 individuals participated in events to increase the economic vitality of Virginia. Another 5,000 individuals indirectly increased their awareness of the importance of the forest products industry to Virginia. Over 225 community leaders were impacted and increased their awareness of opportunities for Virginia. At least nine new businesses were created or expanded due to these efforts resulting in over 1.5 million dollars in additional revenue for the businesses. One major employer has the potential to add over 1,000 jobs in southside Virginia by the year 2010. Over 1,100 citizens and community leaders increased their awareness of natural resource public policy issues in the state, with at least 350 who increased their awareness of community based decision-making. These individuals impacted over 10,000 acres of land. Over 1,500 individuals were directly or indirectly increased their awareness of land conversion/fragmentation issues in the state with 32 indicating they implemented at least one new practice impacting over 7,000 acres. Over 500 members from diverse audiences increased their awareness of natural resource issues in Virginia, with 57 indicating they implemented one new forest landowner practice impacting 2,500 total acres.

Key Items of Evaluation

See above.

Program #7

V(A). Planned Program (Summary)

1. Name of the Planned Program

Economics and Commerce

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	10%	10%	10%	0%
602	Business Management, Finance, and Taxation	10%	10%	10%	0%
603	Market Economics	5%	5%	5%	0%
604	Marketing and Distribution Practices	5%	5%	5%	0%
605	Natural Resource and Environmental Economics	5%	5%	5%	0%
607	Consumer Economics	15%	15%	15%	0%
608	Community Resource Planning and Development	15%	15%	15%	0%
610	Domestic Policy Analysis	5%	5%	5%	0%
801	Individual and Family Resource Management	25%	25%	25%	0%
802	Human Development and Family Well-Being	5%	5%	5%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	16.0	9.0	11.6	0.0
Actual	30.6	0.0	11.6	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
545622	40000	552771	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
632689	88232	1288964	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1727944	19800	3070348	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research and educational programs were conducted to support the needs of Virginians and Virginia's farm and small business managers, policy makers, and families. Educational programs in management, marketing, and financial literacy, and economic development were delivered to more than 7,500 active learners participating in 475 workshops or short courses. These programs were supported by more than 43 written publications and two new web sites. Extension and research personnel incorporated an additional 24,123 hours of volunteer time into assist in personal instruction and educational programming activities.

2. Brief description of the target audience

Individuals, families, owners and managers of farms, and small businesses; local, state, and federal personnel and policy makers; and private sector service suppliers are the targeted audiences.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	43000	97000	9500	21000
2007	387730	96150	7674	19030

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	3	17	20

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of education programs planned in farm and agribusiness management and risk management

Year	Target	Actual
2007	20	23

Output #2

Output Measure

- Number of education programs planned in marketing and direct marketing

Year	Target	Actual
2007	20	37

Output #3

Output Measure

- Number of education programs planned in public policy education

Year	Target	Actual
2007	10	32

Output #4

Output Measure

- Number of farmers creating succession plans for their farm business

Year	Target	Actual
2007	100	45

Output #5

Output Measure

- Number of individuals and families completing basic financial management strategies such as budgeting, setting financial goal

Year	Target	Actual
2007	3000	8137

Output #6

Output Measure

- Number of individuals and families creating plans to handle care receiving and caregiving as they age such as advance directi

Year	Target	Actual
2007	100	0

Output #7

Output Measure

- Number of individuals and families creating home-based and micro businesses

Year	Target	Actual
2007	50	176

Output #8

Output Measure

- The number of individuals receiving housing counseling, new home buyer information, housing environment, and care informa

Year	Target	Actual
2007	{No Data Entered}	1254

Output #9

Output Measure

- Number of youth receiving financial education directly and through teacher training.

Year	Target	Actual
2007	{No Data Entered}	5244

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Percentage of transitional plans completed by farm family program participants
2	Percentage of farmers, agricultural business managers and leaders, food processors and agribusiness firm program participants making more informed business and economic decisions
3	Percentage of individuals and family program participants completing basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program after receiving financial instruction.
4	Percentage of individuals and family program participants creating plans to handle care receiving and caregiving as they age such as advance directives, durable powers of attorney and long-term care planning.
5	Percentage of individuals and family program participants creating home-based and micro businesses.
6	The percentage of youth participating in financial literacy programs indicating a change in financial knowledge.
7	Number of marketing and public policy programs conducted resulting in informed entrepreneurship decision making, or new partnerships to reduce business costs and increase revenue through unexploited market niches

Outcome #1

1. Outcome Measures

Percentage of transitional plans completed by farm family program participants

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	60	45

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Asset ownership and management control is changing as the U.S. farm population ages. In the next 20 years 70% of Virginia farms will change hands as the current generation of farmer/landowners retires or die. Most farmers have incomplete or nonexistent succession plans and transitioning the farm to the next generation is more involved than a traditional estate plan. Without a concerted effort, transitioning to the next generation can fail.

What has been done

Extension faculty conducted three five-week, Managing the Farm Transition Workshops. The curriculum provided farm families with information on inter generational transfer of the farm by creating a plan to include power of attorney, wills, advanced medical directives, etc. This series focuses on the actual development of a transition plan by working with small groups of 10 to 15 farms to encourage engagement in planning by multiple generations.

Results

Twenty-six farms completed the five week series representing over 7,300 acres of farmland with a fair market value of $19,000,000. On a scale of 1 (Excellent) to 5 (Poor) participants rated the overall value of this series at 1.3. The average attendance for the five class series was 4.2 classes per person, with 82% of respondents attending all five sessions. A goal of the series was to have participants develop a transition plan for their farm. Evaluations showed the following actions taken: 44% had written both personal and farm goals and 81% held an initial family meeting; 68% completed an inventory of farm and non-farm assets; 68% were working on their Power of Attorney and 56% completed or were working on their advanced medical directive; 52% put together a financial management team and 56% were in the process of developing their farm transition plan. All of the respondents said they would recommend the series to other farm families.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
605	Natural Resource and Environmental Economics
602	Business Management, Finance, and Taxation
601	Economics of Agricultural Production and Farm Management
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

Percentage of farmers, agricultural business managers and leaders, food processors and agribusiness firm program participants making more informed business and economic decisions

2. Associated Institution Types

•1862 Extension
•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	60	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Virginia's farmers, agricultural business managers and leaders, food processors, and agribusiness firms are faced with uncertainty about enterprise selection, management of drought, demand for their products and services, and long term environmental concerns. The overall economic health of agriculture is also of concern to the public and private sectors.

What has been done

Workshops were held in 2007 to improve decision making of individuals and the business sector that provides them with services. Participants received training on farm and business financial planning, cash flow planning, financial aspects of drought management, establishing direct marketing outlets, effective management and planning of farmers markets, developing and executing a marketing plan, feasibility of alternative energy production, and information on management and establishing cooperatives.

Results

More than 60% of workshop participants reported they have knowledge of tools to assist them in making more informed decisions affecting their financial well being, production enterprise, and to evaluate alternative marketing strategies. For example, all farmers participating in a financial planning workshop reported they understood how to construct and analyze the cash flows over the 10 year life of a grape crop. Participants learned that grape production has poor cash flow for the first four to seven years, until the operation is in full production. As programs mature, client behavior change will be documented.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices

Outcome #3

1. Outcome Measures
Percentage of individuals and family program participants completing basic financial management strategies such as budgeting, setting financial goals, establishing a saving/investing program after receiving financial instruction.

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	80	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The U.S. Department of Justice, Office of the U.S. Trustees, called on financial management educators to help enforce the Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) of 2005. The Act requires individuals undergo credit counseling prior to filing for bankruptcy, and they receive instruction in personal financial management prior to being discharged from bankruptcy. In 2006, 13,284 Virginians filed for bankruptcy (7,147 under Chapter 7 and 5,850 under Chapter 13).

What has been done

In light of the financial impact of bankruptcy on both families and communities in Virginia, the Steps for Financial Success program was created and used in personal finance classes taught by VCE to fulfill the personal financial management instruction required by the BAPCPA 2005. In addition, VCE offers classes to the public on financial management, savings and investing, prevention of identity theft, and the wise use of consumer credit through a variety of curriculums adapted to the needs of the audience.

Results

VCE reached over 8,000 adults with financial management programs. Behavior change measured in one of the programs shows 536 (62%) individuals made at least one behavior change. At another program site with 78 participants, a Money Talk class for women had 28 people respond to a survey. Of those responding, 54% reported they saved money since finishing the course. Eleven of those participants shared the amounts they saved and their combined savings totaled $33,100. Instead of reporting an amount, one noted she increased her 401(k) contribution to 30% of her salary. All but one of the respondents took at least one of 14 actions to change their financial behaviors. The one who has not taken action listed future plans to do so. Fifty-four percent of the respondents have reduced expenses to increase money to save and invest, 50% reviewed the features of one or more insurance policies, and 57% calculated their net worth. In classes where intention to change was measured over 80% of participants surveyed said they intended to make changes in behaviors.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
607	Consumer Economics

Outcome #4

1. Outcome Measures

Percentage of individuals and family program participants creating plans to handle care receiving and caregiving as they age such as advance directives, durable powers of attorney and long-term care planning.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

The number of workshops in this area was small so data from these workshops are included in the impact statement on basic financial management education.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #5

1. Outcome Measures
Percentage of individuals and family program participants creating home-based and micro businesses.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	40	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The U.S. Department of Labor notes the labor force is growing less than one percent annually. The need for qualified workers forces businesses to rethink strategies to ensure quality candidates. Child care demands are challenging for employees, especially working parents juggling work and family commitments. There is a cost to business when work and family responsibilities come into conflict. These problems cost U.S. employers approximately $3 billion annually.

What has been done

Virginia Cooperative Extension offers workshops for both child care providers and teens who want to start a babysitting business. These classes include the financial information on running a business. In addition general entrepreneurial workshops were offered.

Results

There was no data available on the number of program participants that actually started a business. However, one program resulted in the start up of a business in cake decorating and party decorations through 4-H and a local college entrepreneurial project.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics

Outcome #6

1. Outcome Measures

The percentage of youth participating in financial literacy programs indicating a change in financial knowledge.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	85

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

On March 26, 2005, the Virginia General Assembly approved SB 950 (now Code of Virginia Section 22.1 200.03B) directing the Virginia Board of Education to establish objectives for economic education and financial literacy. Who Will Own Our Children? is the title of a report issued by the National Association of State Boards of Education (NASBE) Commission on Financial and Investor Literacy that recommends financial literacy be taught in schools.

What has been done

Virginia Cooperative Extension offers programs that teach financial literacy to youth. In addition, faculty train teachers to offer the National Endowment for Financial Education High School Financial Planning Program (NEFE HSFPP) in Virginia Schools.

Results

VCE offered Kid's Market Place (KMP) for elementary youth to over 1,200 youth and Reality Store for over 4,880 middle school and high school youth. Both simulations gave students a taste of "reality" through an educational role playing simulation on making financial choices. Community volunteers were also heavily involved in working with the youth in the simulations. Over 80% of all students who completed Reality Store evaluations indicated a need to change the way they spend money on food, entertainment, and clothing, and making smart financial decisions. In one county, 98% of participants indicated the KMP simulation gave them an increased awareness of making smart financial decisions, 97% discovered that different jobs paid different amounts, 67% of the adult volunteers felt more confident to talk with their children about personal financial management, and 100% of the adult volunteers planned to discuss money management with their child in the near future. VCE with the Virginia Credit Union League offered teacher training to over 300 teachers in the NEFE HSFPP. Over 43,000 student books were provided to Virginia students free of charge in 2007.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #7

1. Outcome Measures

Number of marketing and public policy programs conducted resulting in informed entrepreneurship decision making, or new partnerships to reduce business costs and increase revenue through unexploited market niches

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	36

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Entrepreneurial activity strengthens the economic vitality of communities. Promising avenues for economic development include community food systems, rural tourism, bio fuels, and online marketing. Taking advantage of these opportunities requires educational programming to increase local entrepreneurs' awareness of emerging markets, business development and management skills. Applied research is also needed to determine the feasibility of emerging opportunities.

What has been done

Educational activities conducted included 26 workshops for emerging entrepreneurs, three applied research projects to determine the feasibility of new technologies, and 10 demonstration projects focused on economic development opportunities involving marketing of local food, tourism, conservation measures, and alternative energy technologies.

Results

As a result of these activities participants gained greater awareness and knowledge of funding sources, business planning, marketing strategies, and available resources for assistance. Demonstration projects increased community-wide partnerships resulting in tens of thousands of feet of stream bank protection with a cost savings to cattle producers, an expected $800,000 reinvestment of food purchasing in local agricultural supply chains, and increased marketing opportunities for micro and at home rural businesses via the web.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
604	Marketing and Distribution Practices
610	Domestic Policy Analysis
602	Business Management, Finance, and Taxation
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

Virginia's farmers and agribusiness managers faced a sever drought in 2007 changing the focus of some programs to address their needs in coping with shortfalls in returns and feed supplies.

The current problem in the housing/real estate market has had major impacts on low and middle income home owners in addressing housing, credit, savings, health care, and basics financial management needs.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Evaluation Results

Key Items of Evaluation

Program #8

V(A). Planned Program (Summary)

1. Name of the Planned Program

Families, Youth, and Communities

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	30%	30%	0%	0%
805	Community Institutions, Health, and Social Services	20%	20%	0%	0%
806	Youth Development	50%	50%	0%	0%
	Total	100%	100%	0%	0%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	115.7	6.0	74.9	0.0
Actual	130.8	4.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2329271	90000	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2700961	150000	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
7376625	43500	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activities include entrepreneurial education, asset-based economic development, leadership development, civic engagement, 4-H camping programs, 4-H after-school programs, 4-H in-school programs, 4-H clubs, 4-H special interest groups, 4-H cloverbud groups, district, multistate, and state 4-H trainings, local 4-H trainings, home school education, child care provider education, parent education, online education and distance learning, and specialized trainings and workshops to qualify instructors and to educate trainers.

2. Brief description of the target audience

Youth between the ages of 5-19, pareants, child care providers, providers of after-school care, community organizations, community partners, community leaders and government officials, donors, K-13 educators, and volunteers.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	200000	400000	300000	350000
2007	253222	272429	504246	542492

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	37	0	37

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of trainings, educational workshops, and on-line education sessions for VCE's targeted audiences

Year	Target	Actual
2007	4500	3518

Output #2

Output Measure

- Number of 4-H activities and events conducted for youth lifeskill and leadership development

Year	Target	Actual
2007	2000	1759

Output #3

Output Measure

- Percentage of 4-H youth development programs addressing needs of underserved youth

Year	Target	Actual
2007	12	22

Output #4

Output Measure

- Number of fact sheets, publications and curricula on youth development, families, and communities

Year	Target	Actual
2007	983	48

Output #5

Output Measure

- Number of on-line trainings for youth development, families, and communities

Year	Target	Actual
2007	24	18

Output #6

Output Measure

- Number of in-school, after-school, community clubs, special interest activities, 4-H military programs, and camps

Year	Target	Actual
2007	104150	3673

Output #7

Output Measure

- Number of youth who are recognized through the state 4-H recognition system.

Year	Target	Actual
2007	190000	143142

Output #8

Output Measure

- Percentage of population receiving entrepreneurial education

Year	Target	Actual
2007	1	1

Output #9

Output Measure

- Percentage of population receiving leadership and civic engagement training

Year	Target	Actual
2007	1	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Percentage of 4-H volunteers who show increased knowledge, skills, and attitudes in professional area best practices
2	Percentage of 4-H youth who show improvement in the Virginia 4-H life skill areas
3	Percentage of childcare providers and parents who will improve caregiving practices and nurturance of children
4	Percentage of parents and child care providers who display improved knowledge of age-appropriate child development in cognitive, language and literacy, social/emotional, and physical domains
5	Percentage of parents who show improved parenting practices
6	Percentage of groups within every unit implementing participatory decision making processes
7	Percentage of groups collaborating to form community coalitions
8	Percentage of communities that have developed strategies to enhance economic viability
9	Percentage of communities where youth are engaged in local government agencies, boards, and organizations.
10	Number of clubs where youth are involved in structured and after-school programming.

Outcome #1

1. Outcome Measures

Percentage of 4-H volunteers who show increased knowledge, skills, and attitudes in professional area best practices

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	70	70

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Volunteers are vital to 4-H and their reasons for volunteering are as diverse as the personalities involved. Altruistic reasons may be what attracts volunteers to 4-H but it is not necessarily what keeps them involved. Volunteers expect to develop personal and social skills as a result of their efforts. In addition, they expect training and support to build self confidence when working with youth and developing youth/adult partnerships.

What has been done

Extension personnel provide training to volunteers at local, district, state, and national levels. Training is provided in many forms, both formally and informally. Volunteers are encouraged to attend trainings and to communicate additional training needs. Virginia 4-H makes all reasonable efforts to address these needs through educational programming.

Results

Virginia 4-H reported 15,641 enrolled volunteers in 2007. The majority of these volunteers received formal training. Volunteers aid extension personnel in programming efforts, with 557,694 hours of volunteer time donated in 2007. The VCE EFNEP/SCNEP program recruited and trained 69 new volunteers in the Literacy, Eating and Activity for Preschoolers curriculum. In turn, these volunteers taught 730 low income youth in knowledge received from training. The shooting sports program conducted five trainings for new volunteers and certified 108 new adult/teen instructors. There were 129 participants at the NC/VA Equine Leaders Conference, an increase of 58% attendance. Of the 78 evaluation responses, 94% indicated an increase in knowledge about equine and youth development issues. Forty five youth/adult participants at the Caring for Your New Lamb workshop showed increased knowledge in record keeping, lamb health, and lamb selection. Two state 4-H volunteer leader conferences were conducted reaching 125 volunteers with 34 professional development workshops. Many other training opportunities were offered, but impacts were not reported at the state level.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Percentage of 4-H youth who show improvement in the Virginia 4-H life skill areas

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	55	35

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Early adolescence is a time of rapid change in young people, hence, this is often an excellent opportunity to make a positive impact upon their development. 4-H reaches youth in early adolescence and can significantly influence the development of young people. Life skills development serves as the foundation of the 4-H program in Virginia.

What has been done

Through efforts of 4-H agents, technicians, project associates, specialists, and volunteers, more than 140,000 youth ages 5-19 were enrolled in Virginia 4-H in 2007. Youth participated through a variety of delivery modes including: community clubs, in-school and afterschool programs, military clubs, special interest clubs, camping, school enrichment, and individual study. All of these delivery modes focus on building life skills such as: communication, responsibility, team building, and leadership. In particular, Virginia's 4-H camp program has a strong reputation for building life skills in youth.

Results

Parents and guardians of 4-H campers were asked to compare life skills behaviors before and after their child/children's participation in 4-H camp. Following 4-H camp, youth were better able to take care of their own belongings(53% before and 70% after), share work responsibilities (51% before and 71% after), take responsibility for their own actions (66% and 77% after), find solutions to problems (70% before and 81% after), adapt to change(70% before and 78% after), and listen to the opinions of others (63% before and 76% after). In addition, parents and guardians reported that youth who participated in experiential learning opportunities at camp better set priorities and goals, participated in discussions, and are cooperative team players as a result of their camp experience.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures
Percentage of childcare providers and parents who will improve caregiving practices and nurturance of children

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A child's development during first three to five years of life impacts future success in forming positive relationships with others and cognitive development. High-quality early childhood experiences can positively affect child development, including literacy, physical health, and social and emotional development. Children experiencing high-quality early care are less likely to repeat a grade, have an unplanned pregnancy, drop out of school, and depend on public assistance. They are more likely to go to college, buy a home, and gain skills to become capable workers and critical thinkers.

What has been done

In response to local and statewide needs a variety of parenting education programs and child care provider trainings were held across the state by VCE. In particular, focused trainings with early childhood professionals on "Supporting Boys," "Great Activities," and "Anger" addressed increasing nurturing behaviors.

Results

Evaluations of one general parenting education program revealed 156 of the parents effectively implemented positive change in effective child nurturing and discipline techniques. In another class, follow up evaluations completed by 58% of the 86 participants measuring practice changes made as a result of their participation in trainings found 83% rearranged their learning environment to better suit the needs of boys, 75% used the six steps to conflict resolution to help children resolve problems and gain social skills, 93% included more physical activity into their daily routine, 93% changed the way they think about and work with active children, 89% made changes to accommodate children with high activity levels, 100% helped children learn how to handle angry emotions by teaching them appropriate ways to cope with anger, and 90% used children's books and empathy to help children calm down.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

Outcome #4

1. Outcome Measures

Percentage of parents and child care providers who display improved knowledge of age-appropriate child development in cognitive, language and literacy, social/emotional, and physical domains

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to a Virginia Department of Health report, an estimated 70% of working women have children enrolled in childcare. In addition, some 250,000 children ages birth through preschool are being cared for by approximately 12,000 childcare providers. Studies show high quality childcare increases by 29% a child's likelihood of getting a high school diploma, reduces special education by 41% and reduces grade retention by 40%.

What has been done

In response to local and state childcare needs training programs for early childhood educators were provided on orientation to family child care, foundations in early care and education, first aid, CPR, and medication administration. Additionally, the InterCounty Childcare Connection was developed to foster recruitment, training, and resources for childcare providers. Partnerships were developed and/or strengthened with Social Services, Head Start, and other local organizations.

Results

In 2007, 1,437 child care providers participated in Extension sponsored childcare workshops and trainings. Some of the outcomes include: 93% learned the effects of physical movement on a children's brain development, 96% learned about speech and language delays and disorders, 95% learned how to determine when a speech or language referral is warranted, 94% learned how to adapt movement activities for inside use in the daily routine, 92% learned how to extend themes from children's stories using art activities, 100% learned about fine motor development in infants, toddlers, and preschoolers, 100% learned how to enhance fine motor development, 93% learned how to engage parents in their children's learning, 98% learned new visuals and songs to enhance infant and toddler language development, 98% learned strategies to prevent misbehavior, and 97% learned how to state expectations and set limits to promote positive behavior.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #5

1. Outcome Measures

Percentage of parents who show improved parenting practices

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In Virginia, 31 children died from abuse and neglect in 2006. That same year, there were 47,130 reported victims of abuse/neglect and 4,741 founded investigations. Research indicates effective parenting and positive parent-child relationships aid in young people's successes. Parenting has short and long term effects on children, including socioeconomic outcomes into adulthood. According to VCE situation analysis results, parenting is the third most important statewide issue in Virginia.

What has been done

In response to local and statewide needs, a variety of parenting education programs for various audiences were conducted by VCE including the Juvenile Justice Parenting Program, the eight week Positive Parenting Program, programs for inmates being released within six months, programs for parents involved in custody disputes using the Living Apart curriculum, the Parenting Together program, programs for pregnant and parenting teens, court-ordered parenting classes, and content-specific parenting programs and formats including Lunch and Learn parenting workshops.

Results

At least 968 parents attended parenting education programs. Selected impacts from 122 parents completing classes regarding custody disputes show 91% understand how to reduce parental conflict, 94% learned how and why parental conflict creates stress for children and instead they encouraged creating peace, and 91% increased understanding of why children need a healthy relationship with both parents and ideas of how to achieve them. Also, 161 participants attended court-ordered classes and 80% of them improved their ability to communicate effectively with their children, 89% acquired new discipline techniques, and several parents stated that as a result of the course they made behavioral changes that resulted in regaining custody of their children. One hundred twenty-four parents completed the Juvenile Justice Parenting Program and were referred to the program by school personnel due to their child being at risk of dropping out. In a three month follow-up survey of 28 youth, 96% of them were attending school regularly, and only 18% of them had additional charges in Juvenile Court.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #6

1. Outcome Measures

Percentage of groups within every unit implementing participatory decision making processes

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	65

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Participatory decision-making strategies have been identified as effective in community building efforts. The benefits of participatory decision-making include transparency as information is open to all stakeholders, accountability because by sharing in decisions, partners are accountable to each other, equity because all participants have the opportunity to present concerns and defend interests, and efficiency, as information is shared and decisions made jointly, avoiding overlap and duplication.

What has been done

Extension Leadership Councils, 4-H youth advisory councils, collaborative coalitions, committees, leadership programs, and programs engaging youth and adults as partners in community development are all engaged in participatory decision making processes in Virginia through VCE.

Results

One example of a local effort employing participatory decision-making strategies is the Madison County Farmers' Market. A local committee of 12 farmers and consumers was selected to develop a plan to promote, implement and evaluate the market. The weekly market opened in May and ran through October with 18 farm vendors. Preparing for the opening, three winter commercial horticulture workshops were conducted for 68 participants. As a result, three new produce growers adopted production practices that generated products for the market. Master Gardeners hosted horticulture workshops and product sampling monthly at the market, newspaper ads were published promoting the market, and local farm vendors were invited to join the local Buy Fresh Buy Local Chapter. Preliminary results from farm vendors indicated the market averaged 150 consumers per week and generated $125,000 in sales. As a result of this success, the Madison Board of Supervisors included the Madison County Farmers Market in the $775,000 Hoover Ridge Development Plan.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #7

1. Outcome Measures

Percentage of groups collaborating to form community coalitions

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Within Virginia and across the U.S., community collaborations provide a promising approach to address the needs of children, youth, families, and communities. The demands on educational and human service providers dictates that citizens and providers develop effective ways to improve the use of limited resources. Coalitions can serve as an effective approach to resource sharing by bringing resources from many different organizations together to solve complex problems.

What has been done

In response to these needs VCE works with community members, organizations, and government agencies to develop community food system working groups. VCE has been instrumental in organizing a grassroots working group of concerned citizens to explore the connections between economic development, entrepreneurship, human health, food access, and land use planning.

Results

An example of one coalition is the Richmond Regional Food System (RRFS) working group. The RRFS group is leading the effort to document and advertise locally produced food products and local food retailers, and the group has been working to initiate a Buy Fresh, Buy Local chapter. The RRFS group has also initiated a regional farm market managers network. By networking market managers the group hopes to improve vendor sales, identify educational needs, and recruit new products and services for market. Market managers agree that more communication is necessary among markets to improve customer and vendor satisfaction and market sustainability. As a result of VCE's involvement in the RRFS group, area non profits have invited VCE cooperation in the design and facilitation of educational events and grant applications. The educational efforts will be designed to raise awareness of the potential of agriculture as an economic development driver and to coordinate the current work of area organizations on this issue.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #8

1. Outcome Measures

Percentage of communities that have developed strategies to enhance economic viability

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	3	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a need to strengthen the economic vitality of rural communities in Virginia. One promising avenue for economic development is rising consumer demand for local foods and rural tourism. Researchers identified a need to implement programs that increase local entrepreneur's awareness of and access to new markets. Rural entrepreneurs may need aid in developing skills in identifying markets and assessing the commercial feasibility of various opportunities. There is also a need to improve entrepreneurial capacities to help create and maintain profitable businesses.

What has been done

VCE programs addressing these needs include the Southwest Virginia Fresh Direct project aimed at developing a website to showcase small farms and locally grown products and services to the region and to internet consumers. VCE also worked with Crossroads Institute, local governments, and partners to implement an initiative to identify economic opportunities in rural Appalachia. On Tangier Island, VCE worked with crabbers, bed and breakfasts, and restaurants to make tourism directly available to watermen and to encourage tourists to experience how a waterman makes a living.

Results

Preliminary success of the Southwest Virginia Fresh Direct website include increased partnerships with groups wanting to link to the website including Smyth County Tourism, Wythe County Tourism, Round the Mountain Artisan Network, Virginia Farm Bureau, Conservation Management Institute, Grayson Landcare and Blue Ridge Crossroads Economic Development Authority. Also with Smart Communities Initiative's focus on alternative economic development nearly 400 entrepreneurs, youth, and regional leaders attended events during National Entrepreneurship Week. These activities helped local leaders design a vision for alternative economic development and led to the creation of a regional Small Business Development Center, along with funding to support regional technology infrastructure and a new position focused on alternative economic development. On Tangier Island, watermen began taking tourists out on their boats. Some watermen initially viewed the project skeptically, but with the initial successes experienced last year other watermen are planning to expand their efforts this year. As a result, there has been an increase in tourist dollars spent on the Island.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

Outcome #9

1. Outcome Measures

Percentage of communities where youth are engaged in local government agencies, boards, and organizations.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

Information was not collected this year on these efforts.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #10

1. Outcome Measures
Number of clubs where youth are involved in structured and after-school programming.

2. Associated Institution Types

•1862 Extension
•1890 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	500	2187

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is an increasing need for out-of-school programming for children and youth between the ages of 5 and 14 in Virginia. Participation in quality afterschool programs has been linked to lower incidence of academic failure, substance abuse, and delinquency. Youth who attend these programs have demonstrated improved academic achievement and improved social skills. Challenges to effective afterschool programming are program quality, staff training, staff turnover, and consistent funding.

What has been done

VCE and 4 H Youth Development contributed to meeting the needs of local afterschool programming providing expertise and resources to partners with existing afterschool programs including starting 4-H afterschool clubs, expanding the quality of 4-H afterschool programming, training teen and adult volunteers to lead clubs, and reaching underserved audiences in 4-H afterschool efforts.

Results

As a result of 4-H youth development unit efforts in afterschool clubs, there was an increase in the use of 4-H curricula in after school programs and an increase in organized 4-H clubs in afterschool settings. The number of 4-H afterschool clubs and number of youth involvement in Virginia increased. In 2007, there were over 2,000 4-H after school clubs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

In 2007, there were vacancies in 4-H and Family and Consumer Sciences agent and specialist positions that were not filled. Some of those positions are still in the search process and others have been subject to a statewide hiring freeze due to local and state budget constraints. Additionally, the 4-H State Program Leader and one state 4-H specialist retired in 2007. These vacancies impeded meeting some of the outputs and outcomes in this planned program for 2007.

The output, "Number of in-school, after-school, community clubs, special interest activities, 4-H military programs, and camps" was originally a target of 104150 which reflected individual number of youth. Intead, the output measures number of units so 3673 is a more accurate reflection of the output.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Case Study

Evaluation Results

Day Camp for Hispanic Children - The 2007 Day Camp for Hispanic Children worked with Hispanic youth to improve their English language skills, and introduce county services to this population, thereby assisting with school transition, citizenship, and community involvement. Seventy percent of the participants have been observed utilizing other community day camps and programs. Hispanic participation in 4-H has increased by 80%. Additionally, the Hispanic population is represented on VCE's ELC, using emergency services with more confidence and regularity, and attending PTA meetings and becoming more involved in their child's education.

Impact of 4-H on youth development - Data gathered from focus group and personal interviews were analyzed using content analysis and the following impacts were identified: 1) Exposure to innovative programs, interaction with youth from diverse backgrounds, formal communication with adults, and community involvement led 4-Hers to pursue leadership roles. 2) The agent's personal involvement and genuine excitement, her ability to address economic barriers and transportation concerns, and her belief in unrecognized potential kept 4-Hers consistently involved in the program.

Parenting education - In 2001, the provisions of House Document No. 26 from the Virginia Supreme Court went into effect. The document outlined a model parent education curriculum and study of related custody and visitation issues. In 2007, thirteen sessions were held with 122 parents to help them develop skills for parallel parenting that focuses on the child. Ninety-one percent reported understanding how to reduce parental conflict, 94% reporterd how and why conflict between parents creates stress for children and encouraged creating peace instead of stree and conflict, and 91% reported increased understanding of why children need and want a healthy and meaningful relationship with both of their parents and ideas of how that may be achieved.

Key Items of Evaluation

see above text box

Program #9

V(A). Planned Program (Summary)

1. Name of the Planned Program

Plants and Plant Products

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%	10%	10%	10%
201	Plant Genome, Genetics, and Genetic Mechanisms	10%	10%	10%	10%
202	Plant Genetic Resources	15%	15%	15%	15%
205	Plant Management Systems	25%	25%	25%	25%
216	Integrated Pest Management Systems	5%	5%	5%	5%
403	Waste Disposal, Recycling, and Reuse	5%	5%	5%	5%
511	New and Improved Non-Food Products and Processes	10%	10%	10%	10%
601	Economics of Agricultural Production and Farm Management	10%	10%	10%	10%
712	Protect Food from Contamination by Pathogenic Microorgani	10%	10%	10%	10%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	6.7	1.0	4.9	1.7
Actual	41.3	1.0	4.9	1.7

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
736225	142121	745871	851089
1862 Matching	1890 Matching	1862 Matching	1890 Matching
853707	282241	1739239	550454
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2331568	0	1296957	306387

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research experiments on genetic improvement and manipulation of plants, bioprocessing, production systems, and BMP effectiveness. Contribute presentations and scholarly publications to regional, national, and international scientific organizations. Engage with clientele to adapt research products to the production environment. Conduct multi-county and in-depth educational programs and shortcourses on new plants and plant products, their management, food safety issues, and associated BMPs. Collaborate with other state specialists to develop regional publications in these areas. Maintain demonstration plots of cultural practices, techniques and germplasm adaptability of selected crops. Publish (listserv, web, and mailing) newsletters to provide practical information on pest management, cultural practices, and other research-based aspects of plant management.

2. Brief description of the target audience

The target audience includes Extension educators, commercial producers, policy makers, small businesses, pesticide applicators, homeowners and other plant and food product consumers. Youth, their parents and limited income consumers are targeted through 4-H horticulture programs and community gardening efforts.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

Year	Direct Contacts Adults Target	Indirect Contacts Adults Target	Direct Contacts Youth Target	Indirect Contacts Youth Target
Plan	130000	2100000	0	0
2007	111235	262550	16565	39099

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	1

Patents listed

Low phytic acid, high sucrose, and low stachyose soybean lines

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	12	43	55

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational meetings conducted

Year	Target	Actual
2007	3000	844

Output #2

Output Measure

- Number of publications disseminated

Year	Target	Actual
2007	4000	47844

Output #3

Output Measure

- Number of volunteers

Year	Target	Actual
2007	300	7145

Output #4

Output Measure

- Number of research studies completed on biobased products

Year	Target	Actual
2007	2	17

Output #5

Output Measure

- Youth educated in Master Gardener activities

Year	Target	Actual
2007	{No Data Entered}	53304

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of commercial producers educated about new production techniques or BMPs
2	Number of commercial producers adopting new BMPs
3	Number of noncommercial gardeners/producers educated about new techniques or BMPs
4	Number of noncommercial gardeners adopting new techniques or BMPs
5	Number of new cultivated varieties released
6	Number of research discoveries that increase greenhouse profitability.

Outcome #1

1. Outcome Measures

Number of commercial producers educated about new production techniques or BMPs

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	500	22702

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

For the Mennonite community in the Shenandoah Valley and the 400 families who rely on dairy and poultry as their primary farming operation, economic pressures and environmental challenges have made it more difficult and expensive to get into and remain in agriculture. Produce auctions have proven successful in establishing produce growing as a viable alternative enterprise in other plain communities.

What has been done

Through VCE programming and the work of area farmers, the Shenandoah Valley Produce Auction was formed as an agricultural-based enterprise. In 2007, VCE supported this new enterprise by providing educational programming and personalized horticultural consultation. Events for these new growers included workshops on sustainable vegetable production, nursery and greenhouses, bedding plants, field grown fresh cut herb production, and commercial vegetable production.

Results

In its first three seasons, the auction exceeded the members and participating growers' expectations. Gross sales receipts for the 2007 season surpassed $1.3 million. These sales come from over 350 registered vendors, most of who are from the Mennonite community and other groups within a 100-mile radius. As a startup enterprise, the produce auction helped diversify the farm economy for Mennonite families and others, provided new agriculture-based opportunities and enterprises for women and youth, and enhanced VCE's programming efforts with men, women, and youth in this distinct agricultural community.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
216	Integrated Pest Management Systems
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
511	New and Improved Non-Food Products and Processes

Outcome #2

1. Outcome Measures

Number of commercial producers adopting new BMPs

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	1586

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Wheat production has historically been part of the row crop agriculture cropping rotation scheme in the lower middle peninsula of Virginia and accounted for over 7,500 acres of cropland in 2007. A 33% increase is expected in 2008. Interest in wheat production has increased due to prices and the use of no-till practices. Producers need information they can use to produce high quality, no-till wheat to take advantage of prices while improving carbon sequestration and reducing erosion.

What has been done

A group of grain farmers met, discussed production topics. and suggested on-farm plots to help them learn more about topics related to higher wheat yields. Wheat plots are planted in the fall and evaluated each spring by agents and members of the group. Farmers can see first hand what varieties and practices work best in an on-farm setting. This group also receives marketing information through meetings, mailings, and e-mails.

Results

Variety selection is one of the most important best management practices a farmer can make. From this group of producers, 85% based variety selections on statewide statistical data refined by locally generated data. As a result, the group increased their income by an average of $40 per acre over varieties they would normally have selected. After observing additional practices under local replicated test conditions, an additional $18 per acre was saved by 50% of the group by dropping an unnecessary treatment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
102	Soil, Plant, Water, Nutrient Relationships
201	Plant Genome, Genetics, and Genetic Mechanisms
216	Integrated Pest Management Systems
205	Plant Management Systems
403	Waste Disposal, Recycling, and Reuse
511	New and Improved Non-Food Products and Processes
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Number of noncommercial gardeners/producers educated about new techniques or BMPs

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50000	109288

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In 2007 Virginia commemorated the 400th anniversary of the settlement at Jamestown. The America's Anniversary Garden (AAG)(TM) project was VCE's contribution in partnership with the Jamestown 2007 Committee, to promote the planting of signature gardens, unite horticultural interest in commemorating the event, and to stimulate interest in horticultural plantings. These signature gardens consist of plants with red, white and/or blue features designed to thrive for all gardeners.

What has been done

VCE implemented a marketing campaign of the AAG concept to unify garden, tourism, civic, non-profit, cultural, educational, green industry, and business organizations in the state. A statewide contest with 15 categories was sponsored by 11 state agencies. A new partnership created with the National Junior Master Gardener program and the Weekly Reader program promoted horticulture education to 3rd and 4th grade teachers and students, and resulted in a national school garden design contest.

Results

VCE agents distributed over 50,000 AAG seed packets supplied by the Jamestown 2007 Committee, and the AAG website recorded 78,241 hits. The state AAG contest had 109 entries from a strong cross section of Virginia, and awards were presented at the Virginia State Fair. The partnership with JMG and Weekly Reader elevated the AAG to the national level, with teacher's guides sent to over 57,000 3rd and 4th grade teachers, and a AAG poster sent to over 1.2 million students. Sixty-five entries were submitted from 36 states. The grand prize winner was from Gainesville, GA. Evaluation focus groups with retailers revealed they found the AAG commemorative program only marginally increased gardening interest. In large part, the entire Jamestown commemorative event did not "catch fire as expected." They considered the AAG a "great concept, with literature well put together, well researched, and well thought-out" but in need of more funding and marketing.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
511	New and Improved Non-Food Products and Processes
403	Waste Disposal, Recycling, and Reuse
202	Plant Genetic Resources
216	Integrated Pest Management Systems
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #4

1. Outcome Measures

Number of noncommercial gardeners adopting new techniques or BMPs

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5000	5533

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Chesapeake Bay is one of Virginia's most economically and environmentally significant assets and an integral part of both state and local economies. The Bay has experienced an accelerated decline in water quality due to over enrichment of nutrients. A major contributor to nutrient discharge is urban stormwater runoff, which carries with it residues of fertilizers, pesticides, and herbicides. The activities conducted on land directly affect pollution levels in the Bay.

What has been done

The Turf Love program is a community based water quality improvement education program to support protection of water resources and quality of the landscape. Through public workshops and home visits, the Turf Love program educates homeowners and landscape professionals on producing healthy turf while reducing use of fertilizers, pesticides, and insecticides contributing to water pollution.

Results

The Turf Love program hosts two major public seminar events "Turf Love U", in the spring, and "Super Turf Saturday" in the fall, with educational and technical assistance to citizens through on-site landscape assessments. The assessments were conducted by trained Master Gardener volunteers, the Turf Rangers, who contributed over 600 hours to the program. Each site received a nutrient management plan, a turf maintenance calendar, a BMP report, and a GIS map indicating the location, soil series, and proximity to Resource Protection Areas (RPAs). Over 29% of sites were located in or close to an RPA. Over 257 citizens in 96 different neighborhoods received on-site home lawn analysis, along with two golf courses and three neighborhood common areas. As a result of this program, 159 acres of turf were assessed and have certified nutrient management plans in place.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems
511	New and Improved Non-Food Products and Processes
403	Waste Disposal, Recycling, and Reuse
205	Plant Management Systems

Outcome #5

1. Outcome Measures

Number of new cultivated varieties released

2. Associated Institution Types

- 1862 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Fusarium head blight in wheat produces a toxin which makes infected wheat unsuitable for human consumption. Diseases of wheat can reduce yields by 10 to 20% in susceptible varieties. Mills in our region can utilize 2.9 million tons of wheat per year, and demands are increasing for ethnic and artisan foods. High transportation costs give locally grown grains a market advantage, but high quality, disease resistant varieties are needed to restore buyer's confidence and increase prices.

What has been done

Identification, genetic characterization, mapping of chromosome location, and development of DNA markers for genes governing resistance to diseases including leaf rust in barley, powdery mildew, and fusarium head blight in wheat provide researchers worldwide with knowledge and tools to accelerate variety development. Production of such varieties can provide growers, end users, and consumers with a sustainable, economical, and safe food supply.

Results

Production of hulled barley cultivars Price and Thoroughbred, with improved grain quality, has revitalized barley markets in the eastern U.S. Hulled barley grain was exported in 2005 and 2006 from the eastern U.S. to foreign markets for the first time in many years. Thoroughbred barley is being used as the base commodity in a new market to produce malt-derived beverages. Hulless barley varieties Doyce and Eve (new in 2007), are being evaluated in at least six states for use in feed and ethanol markets. Recently released wheat varieties Tribute and Jamestown have resistance to fusarium head blight, and are widely adapted. Use of these varieties will prevent the use of one or more fungicide applications, at a savings of $2.4 million per year in Virginia. The 15 wheat varieties released during the past five years are grown in more than 12 states in the eastern U.S. and in Canada, with 1.78 million units of certified seed of these varieties sown on over 890,000 acres.

Varieties of soybeans with large seed size, high seed yield, desirable agronomic traits, high nutritional value, and adapted to Virginia and the mid-Atlantic are being developed at VSU. Fnially VSU is also developing lupin varieties adapted to Virginia's agroclimatic conditions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources

Outcome #6

1. Outcome Measures

Number of research discoveries that increase greenhouse profitability.

2. Associated Institution Types

•1890 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Production of tomatoes in greenhouses and high tunnels could provide an alternative source of income to small and limited resource farmers during the colder months. But high costs of pest control and energy are two major limiting factors in growing tomatoes in greenhouses and high tunnels.

What has been done

Insect pests and their natural enemies were monitored in three commercial tomato greenhouses visually using sticky card counts. The "Nile Stain" of Encarsia formosa was effective against both greenhouse whitefly and sweet potato whitefly. The rove beetle, Altheta coriaria showed promise as a general soil predator against thrips. Light levels and air temperatures were monitored in three greenhouses and one high tunnel. The studies indicated there is very little net photosynthesis at temperatures above 16 degrees C with light intensities typical of overcast skies in early spring. High tunnels with plastic sheeting had similar winter light greenhouses but had no supplemental heat. Heating costs can be reduced by correlating the available light to the growth of plants and number of tomato heads.

Results

Tomato growers now have access to a strain of Encarsia formosa highly effective against all whitefly species commonly found in the greenhouse. They do not have to distinguish between whitefly species or rely on other parasitoids that have been ineffective against Bemesia type whiteflies in Mid-Atlantic region tomato greenhouses. Energy costs for heating can be reduced with little or no reduction in photosynthetic rate during overcast days, and may reduce plant stress during critical periods of high fruit load in early spring. Results of this project were presented at national and regional entomological society meetings.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

Statewide drought lead to redirection of many programs to deal with water shortage, poor hay production, and resulting quality problems. Vacancies in key positions remained unfilled as a result of state budgets, policy changes, and redirection efforts. In general, urban and noncommercial programming efforts were more visible this year, and several commercial programs reported under a different planned program.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Case Study
- Other (focus groups)

Evaluation Results

Evaluation focus groups with retailers revealed they found the AAG commemorative program only marginally increased gardening interest. In large part, the entire Jamestown commemorative event did not “catch fire as expected.” They considered the AAG a “great concept, with literature well put together, well researched, and well thought-out” but in need of more funding and marketing.

Key Items of Evaluation

Program #10

V(A). Planned Program (Summary)

1. Name of the Planned Program

Pest Management

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	10%	0%	10%	10%
211	Insects, Mites, and Other Arthropods Affecting Plants	10%	0%	10%	10%
212	Pathogens and Nematodes Affecting Plants	10%	0%	10%	10%
213	Weeds Affecting Plants	10%	0%	10%	10%
216	Integrated Pest Management Systems	20%	0%	20%	20%
403	Waste Disposal, Recycling, and Reuse	10%	0%	10%	10%
711	Ensure Food Products Free of Harmful Chemicals, Including	10%	0%	10%	10%
723	Hazards to Human Health and Safety	10%	0%	10%	10%
804	Human Environmental Issues Concerning Apparel, Textiles,	10%	0%	10%	10%
	Total	100%	0%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	17.8	0.0	13.0	1.5
Actual	33.1	0.0	13.0	1.5

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
589621	0	597347	312562
1862 Matching	1890 Matching	1862 Matching	1890 Matching
683709	0	1392906	378638
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1867286	0	3440907	82432

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct workshops, meetings, field tours, and demonstrations, develop training media, training manuals, curriculum, and resources, provide training, provide counseling, conduct assessments, facilitate meetings, and document stakeholder input, partner with other state and federal agencies including VDACS, USDA, and EPA, conduct pesticide disposal events and related activities, conduct on-line courses and hands-on activities, conduct research experiments and surveys, maintain the Asian soybean rust/soybean aphid website, ag pest advisory and phone assisted hotlines.

The Virginia IPM Program was extended by 26 volunteer VT specialist faculty (e.g., weed scientists,entomologists, plant pathologists, horticulturalists) and VCE agents throughout the Commonwealth during the reporting period (a 46% increase from 2006). A total of 854 (a 13% increase) workshops, short courses, media pieces (radio/television), demonstrations or presentations were presented to a varied audience including homeowners, public school officials, food preparation staff, pesticide dealers/distributors/handlers, growers, and forest, plant nursery, landscape, and golf course managers across the Commonwealth. There were 70,972 direct contacts with clientele (2% youth, 98% adult), 132,374 indirect contacts (emails, newsletters, telephone), and a total of 26,417 (a 40% increase from 2006) extended learners (four or more hours of training). A total of 100 new media offerings were developed including VCE publications, manuals, guides, websites, and trade journal articles. A total of 483 volunteers contributed 4,538 hours to IPM program activities. Faculty and in the College of Agriculture and Life Sciences in the Departments of Entomology, Horticulture, and Plant Pathology, Physiology and Weed Science, and local agents generated a total of $3,191,249 (an 18% increase from 2006) in extramural funding from grants, contracts and donations to support development and extension of IPM.

2. Brief description of the target audience

Consumers, landowners, homeowners, producers, and producer groups, pesticide applicators seeking certification under federal and state laws, pesticide regulators, boards, commissions, and enforcement officials, local government, councils, and community groups, universites, colleges, K-12, and youth aged 13-18, schools, advocacy and consumer protection groups and associations, pesticide safety educators, pest management specialists, and related experts, authors, journalists, other media specialists, institutional, industrial, and vector control groups and individuals, health/medical, environmental, and emergency response personnel and organizations, farmworkers, migrants, and day-laborer groups and individuals, researchers, scientists, pesticide toxicologists, Extension educators and related experts.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	14700	21000	600	2200
2007	69557	129735	1415	2639

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	16	41	57

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of production units that utilize at least one additional IPM product, service, tactic, or practice for selected commodities

Year	Target	Actual
2007	1000	472

Output #2

Output Measure

- Number of people attending events, programs, and meetings on IPM related topics for selected commodities and/or at selecte

Year	Target	Actual
2007	10000	6544

Output #3

Output Measure

- Number of new education and training materials incorporating information on the most effective IPM strategies and systems fo

Year	Target	Actual
2007	75	25

Output #4

Output Measure

- Number of private applicators trained for certification

Year	Target	Actual
2007	750	672

Output #5

Output Measure

- Number of commercial applicators trained for certification

Year	Target	Actual
2007	750	1303

Output #6

Output Measure

- Number of private applicators trained for recertification

Year	Target	Actual
2007	2000	3059

Output #7

Output Measure

- Number of commercial applicators trained for recertification

Year	Target	Actual
2007	1000	1738

Output #8

Output Measure

- Number of non-certified applicators trained

Year	Target	Actual
2007	2000	3598

Output #9

Output Measure

- Number of stakeholders enrolled in the IPM Stakeholder Network

Year	Target	Actual
2007	100	323

Output #10

Output Measure

- Number of trainers and regulatory officials trained

Year	Target	Actual
2007	300	619

Output #11

Output Measure

- Educational media website hits communicated through the Pesticide Safety Education website

Year	Target	Actual
2007	10000	4760323

Output #12

Output Measure

- Pounds of waste pesticides disposed as a result of pesticide waste programs.

Year	Target	Actual
2007	{No Data Entered}	92097

Output #13

Output Measure

- Number of pesticide waste containers recycled as a result of pesticide container recycling programs.

Year	Target	Actual
2007	{No Data Entered}	10300

Output #14

Output Measure

- Localities participating in pesticide waste disposal and recycling programs.

Year	Target	Actual
2007	{No Data Entered}	27

Output #15

Output Measure

- Operations (farms, pest control companies, golf courses, and individuals) participating in pesticide waste disposal and contain

Year	Target	Actual
2007	{No Data Entered}	112

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of individuals gaining knowledge of IPM
2	Number of production units that adopt one or more additional IPM products, services, tactics, or practices for selected commodities and/or at selected sites
3	Number of applicators who gain knowledge in pesticide safety through certification training and pass the state certification exam(s)
4	Number of applicators who gain additional knowledge in pesticide safety through re-certification training and sufficient credit to maintain their certification
5	Number of applicators, farmworkers, and the general public who gain knowledge in general pesticide safety who are not seeking certification as pesticide applicators
6	Number of trainers who gain knowledge in pesticide safety and pesticide curriculum and progam training in established train-the-trainer workshops
7	Number of pesticide drift violations prosecuted by VDACS
8	Number of personal protective equipment violations prosecuted by VDACS
9	Number of applicators successfully maintaining their pesticide applicator certification to legally apply pesticides in the Commonwealth
10	Crop acreage impacted by the continued availability of viable pest management tools as a result of pest management strategic planning activities and the communication of pest management information to policymakers
11	Potential dollars per acre saved by adoption of new tools for integrated pest management.
12	Number of pounds of pesticide waste disposed of through a statewide pesticide waste disposal program.
13	Number of pesticide waste containers recycled as a result of pesticide container recycling programs.

Outcome #1

1. Outcome Measures

Number of individuals gaining knowledge of IPM

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	6814

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agricultural crops are grown on more than 40,000 farms and 400 million acres of land in Virginia, and make a major contribution to Virginia's economic vitality. Timely and effective pest management of insects, diseases, and weeds is critical to the successful production of most of the important crops such as corn, soybeans, cotton, small grains, peanuts, potatoes, and vegetables. Rapid and direct delivery of real time pest information is a key but challenging element of IPM.

What has been done

The Virginia Ag Pest Advisory (http://www.sripmc.org/virginia/), developed in cooperation with the Southern Region IPM Center, is a database driven website that compiles pest updates from VCE specialists. Weekly e-mails go to agents, growers, and crop consultants across the state. In 2007, the Advisory was discovered by AgFax Media, Brandon, MS, who route information throughout the eastern U.S. through three electronic newsletters PeanutFax, Ag Southern Grain, and Southeast Cotton Report. IPM information was also included in the pesticide safety education curriculum statewide. The pesticide regulatory program works closely with the Southern IPM Center to communicate critical issues to the public and to decision-makers.

Results

In 2007, the number of local e-mail recipients, by request, grew to over 400, the number of pest alerts posted increased from 119 in 2006 to 134, and the number of web hits increased from 8,562 to 12,761. AgFax Media quoted or referenced Virginia cotton IPM information 7,600 times, peanut IPM information 4,000 times, and grains IPM information 1,200 times. A recent survey of the advisory recipients indicated that 87% of respondents accessed the Virginia Ag Pest Advisory. Virtually all of them found it useful and educational, and most stated that it favorably impacted their agricultural production. Extension agents reported that 6,814 individuals gained knowledge on IPM through pesticide safety education programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
112	Watershed Protection and Management
216	Integrated Pest Management Systems
213	Weeds Affecting Plants
723	Hazards to Human Health and Safety
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc

Outcome #2

1. Outcome Measures

Number of production units that adopt one or more additional IPM products, services, tactics, or practices for selected commodities and/or at selected sites

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	554

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Over the last decade there has been a growing national concern about childhood exposure to pesticides. Many states have mandated the adoption of IPM for use in schools. In Virginia, there are 1,836 public schools, servicing 1.2 million students and employing over 200,000 staff. In 1999, Virginia schools were treated monthly with insecticides regardless of need and no pesticide use records were kept. While IPM was not mandated in Virginia, there was a critical need to improve pest management practices. In addition, it was critical to reach pesticide applicators with IPM information in agriculture and specialty areas including urban pest management.

What has been done

To meet this need, a School IPM training program was developed in 2000. The program teaches Extension agents, pest management professionals, and school personnel how to help local schools convert from monthly pesticide applications to an IPM program. In 2007, the School IPM Training program was presented in four sessions to personnel and contract pest management professionals in the Albemarle County and Roanoke City Schools (135 participants total). IPM training was also included with all pesticide safety education programs.

Results

By Dececember 2007 both the Albemarle and Roanoke school districts adopted the IPM program. By adopting IPM the health and safety of the work environment was improved for 1,988 employees and 13,037 students in Roanoke City Schools (41 buildings), and 2,026 employees and 12,491 students in Albemarle County Schools (28 buildings). To date, the school IPM training program has resulted in 18 school districts adopting IPM and reducing their pesticide use by 79%. This reduction has increased the environmental quality of over 960 school buildings, and improved the work environment for over 66,000 school employees and 455,500 Virginia students. There were 554 production units reporting adoption of IPM practices through this program and pesticide safety education in 2007.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
211	Insects, Mites, and Other Arthropods Affecting Plants
723	Hazards to Human Health and Safety

Outcome #3

1. Outcome Measures

Number of applicators who gain knowledge in pesticide safety through certification training and pass the state certification exam(s)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	1888

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Federal and state pesticide laws and regulations require pesticide applicators to be certified to use restricted use pesticides. In addition, Virginia law requires all commercial applicators to be certified to use any pesticide. Without pesticide safety and integrated pest management (IPM) education to enable these individuals to do so, many would suffer economic hardships and violate the law. A lack of knowledge in pesticide safety and IPM practices threatens human health and the environment.

What has been done

In 2007, VCE agriculture and natural resource Extension agents and specialists conducted certification preparation programs in pesticide safety and IPM in 107 localities throughout Virginia. These programs assisted agricultural producers and commercial pesticide applicators comply with the law and protect the environment and human health through safe and efficient use of pesticides and adoption of alternative pest control tactics.

Results

During 2007, 672 private pesticide applicators (farmers) were trained for certification through educational workshops and self study of Extension training manuals, 570 private applicators gained knowledge in pesticide safety and IPM through certification training and passed the state certification exam(s), and 672 private applicators attended programs, which included IPM related topics for selected commodities and/or farms.

During 2007, 1,303 commercial pesticide applicators were trained for certification through educational workshops and self study of Extension training manuals, 1,318 commercial applicators gained knowledge in pesticide safety and IPM through certification training and passed the state certification exam(s), and 1,303 commercial applicators attended programs, which included IPM related topics in their area of pest management.

As a result of VCE pesticide safety and IPM education programs, 1,888 applicators successfully obtained pesticide applicator certification to legally apply pesticides in Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
112	Watershed Protection and Management
403	Waste Disposal, Recycling, and Reuse
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
216	Integrated Pest Management Systems
723	Hazards to Human Health and Safety

Outcome #4

1. Outcome Measures

Number of applicators who gain additional knowledge in pesticide safety through re-certification training and sufficient credit to maintain their certification

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4000	13711

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Federal and state pesticide laws and regulations require pesticide applicators to be certified to use restricted use pesticides. In addition, Virginia law requires all commercial applicators to be certified to use any pesticide. It is mandatory that these applicators renew their pesticide licenses through continuing education every two years. Without pesticide safety and integrated pest management (IPM) education to enable these individuals to do so, many would suffer economic hardships and violate the law. A lack of knowledge in pesticide safety and IPM practices threatens human health and the environment.

What has been done

In 2007, VCE agriculture and natural resource Extension agents and specialists worked with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board to conduct programs in pesticide safety and IPM throughout Virginia. The programs helped agricultural producers and licensed pesticide applicators comply with the law and protect the environment and human health through safe and efficient use of pesticides and alternative pest control tactics.

Results

During 2007, 1,975 pesticide applicators were trained for certification through educational workshops and self study of Extension training manuals, 1,858 applicators gained knowledge in pesticide safety and IPM through certification training and passed the state certification exam(s), and 1,975 applicators attended programs, which included IPM related topics for selected commodities and/or farms and pest management businesses.
As a result of VCE pesticide safety and IPM education programs, 1,888 applicators successfully obtained pesticide applicator certification to legally apply pesticides in Virginia.

During 2007, 4,797 pesticide applicators (farmers) were trained for recertification and 4,797 applicators gained additional knowledge in pesticide safety and IPM through re-certification training and attended programs, which included IPM related topics for selected commodities and/or farms and areas of pest management.
As a result of pesticide safety education and IPM programs, according to state certification statistics, 11,823 applicators successfully maintained their pesticide applicator certification to legally apply pesticides in the Commonwealth. Another 1,888 were added to the total applicators holding certifications in Virginia a total of 13,711.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
216	Integrated Pest Management Systems
403	Waste Disposal, Recycling, and Reuse
112	Watershed Protection and Management

Outcome #5

1. Outcome Measures

Number of applicators, farmworkers, and the general public who gain knowledge in general pesticide safety who are not seeking certification as pesticide applicators

2. Associated Institution Types

- 1862 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	950	3598

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Federal and state pesticide laws and regulations require applicators to follow the pesticide label directions. Pesticide safety education incorporates integrated pest management (IPM) methods into training programs to encourage reduced risk and reduced use of pesticides. Pesticide safety education is mandatory for workers and handlers who must comply with federal worker protection standards. Without pesticide safety and IPM education there is an increased risk of human exposure and environmental from pesticide misuse.

What has been done

In 2007, agriculture and natural resource Extension agents and specialists for VCE conducted programs in pesticide safety and IPM in 107 localities throughout Virginia. The program(s) assisted agricultural producers and non-certified workers and handlers to comply with pesticide laws and regulations, and to protect the environment and human health through the safe and efficient use of pesticides and alternative pest control tactics.

Results

During 2007: 3,598 non certified pesticide applicators (those not seeking certification) were trained in Virginia; 3,598 applicators, farmworkers, and the general public gained knowledge in pesticide safety and IPM; 3,598 applicators, farmworkers, and the general public attended events, programs, and meetings on IPM related topics for selected commodities and/or at selected sites farms.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
403	Waste Disposal, Recycling, and Reuse
112	Watershed Protection and Management
213	Weeds Affecting Plants
723	Hazards to Human Health and Safety
212	Pathogens and Nematodes Affecting Plants
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc

Outcome #6

1. Outcome Measures

Number of trainers who gain knowledge in pesticide safety and pesticide curriculum and progam training in established train-the-trainer workshops

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	619

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Trainers are critical educators who transfer pesticide safety and IPM knowledge directly to pest managers and pesticide applicators. Without properly trained trainers, applicators would be limited in their ability to comply with pesticide laws and regulations. It is crucial to help these individuals update their knowledge of pesticide regulations, IPM, and safety/environmental issues to transfer this information to the public.

What has been done

In 2007, VT offered three online courses for trainers across the U.S. The largest course was the USDA Pesticide Recordkeeping Training Course. Another course was held for Virginia Master Gardeners. A third course was offered to participants in the Northeast Regional Pesticide Safety Education Center course. VCE also held the annual train the trainer workshop for faculty and VCE staff taught in the onsite northeast region pesticide safety education center short course.

Results

VCE trained 482 pesticide regulatory inspectors from across the U.S. in the pesticide recordkeeping course. Those individuals taught colleagues about pesticide recordkeeping and helped applicators comply with USDA pesticide recordkeeping requirements in their states, territories, and tribal jurisdictions. Seventy VCE agents updated their qualifications to conduct training and gained knowledge to train applicators in over 100 Virginia localities at the annual Pesticide Safety Educators Workshop. Fifty Virginia Master Gardeners were trained online to share their pesticide safety knowledge to home gardeners. Forty pesticide safety educators were trained at the Northeast Region Pesticide Safety Education Center short course. As a result, regulators, agents, specialists and Master Gardeners were qualified as trainers to help the public comply with pesticide laws and regulations, protect themselves and their neighbors, and remain profitable if they were in business.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
403	Waste Disposal, Recycling, and Reuse
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
723	Hazards to Human Health and Safety
112	Watershed Protection and Management

Outcome #7

1. Outcome Measures

Number of pesticide drift violations prosecuted by VDACS

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Pesticide drift is one of the most volatile issues associated with pesticide application. When a pesticide drifts off target, crops can be damaged, non-target species can be affected, and the issue of chemical trespass activates regulatory actions and anxiety for communities, neighbors, landowners, and the applicator.

What has been done

Virginia Tech in cooperation with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board implemented a drift prevention education program. That program has existed for over 10 years and most recently included a new campaign to communicate the importance of protecting sensitive areas from drift. When the public asked for help with drift issues, Extension and state regulators partnered to work with communities to resolve conflicts and to educate applicators and the public on drift prevention. Drift and personal protective education became mandatory for every program and tied those parameters into all program evaluation and reporting templates.

Results

A measure of the success of the program is to directly tie drift violations prosecuted by the state pesticide regulatory agency to educational efforts. This benchmark was set at a maximum of 10 drift violations prosecuted in any given year. In 2007, the number of drift violations prosecuted in Virginia was four. The efforts to work together as two state agencies dealing with pesticide safety education and compliance assistance and with the public and applicators so they gain knowledge on how to prevent drift appears to be working. When an Extension agent or state pesticide inspector reports drift problems the program focuses on those localities to step-up educational efforts in that region. In 2007, the program included meeting with two communities and growers in those regions where drift was a concern. In both localities conflicts were resolved and work continued to protect those communities from drift and to protect applicators from violating the law by knowing how to prevent drift. These efforts are in addition to an extensive statewide drift prevention education program conducted by Extension with private and commercial pesticide applicators annually.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
723	Hazards to Human Health and Safety
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
112	Watershed Protection and Management

Outcome #8

1. Outcome Measures

Number of personal protective equipment violations prosecuted by VDACS

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	13711

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The federal and state pesticide laws and regulations require pesticide applicators to be certified to use restricted use pesticides. In addition, Virginia law requires all commercial applicators to be certified to use any pesticide. It is mandatory that applicators renew their pesticide licenses through continuing education every two years. Without pesticide safety and integrated pest management (IPM) education to enable these individuals to do so, many would suffer economic hardships and violate the law. A lack of knowledge in pesticide safety and IPM practices threatens human health and the environment.

What has been done

In 2007, agriculture and natural resource Extension agents and specialists for Virginia Cooperative Extension (VCE), worked with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board to conduct programs in pesticide safety and IPM throughout Virginia. The programs assisted agricultural producers and licensed pesticide applicators to comply with the law and protect the environment and human health through the safe and efficient use of pesticides and alternative pest control tactics. The program made pesticide safety education mandatory for every Extension agricultural agent and tied the issue of applicators being certified as required by state and federal law to educational programs. One of the most prominent violations by applicators is being cited for not being certified to apply pesticides in Virginia. VCE increased efforts to offer training and to inform the public that certification is mandatory for all commercial and many private (farmers) pesticide applicators in Virginia.

Results

During 2007: 1,975 pesticide applicators were trained for certification through educational workshops and self study of Extension training manuals; 1,858 applicators gained knowledge in pesticide safety and IPM through certification training and passed the state certification exam(s); 1,975 applicators attended programs, which included IPM related topics for selected commodities and/or farms and pest management businesses.
As a result of VCE pesticide safety and IPM education programs, 1,888 applicators successfully obtained pesticide applicator certification to legally apply pesticides in Virginia.
During 2007: 4,797 pesticide applicators (farmers) were trained for recertification; 4,797 applicators gained additional knowledge in pesticide safety and IPM through re certification training and attended programs, which included IPM related topics for selected commodities and/or farms and areas of pest management.
As a result of pesticide safety education and IPM programs, according to state certification statistics, 11,823 applicators successfully maintained their pesticide applicator certification to legally apply pesticides in the Commonwealth. Another 1,888 were added to the total applicators holding certifications in Virginia a total of 13,711.

In addition, VCE promoted awareness and the availability of pesticide safety education and regulatory compliance through the VIrginia Tech Pesticide Programs website. The use of that website continued to grow in 2007 with 4,760,323 hits with an estimated 35,000 users.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
112	Watershed Protection and Management
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
216	Integrated Pest Management Systems
723	Hazards to Human Health and Safety
213	Weeds Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
403	Waste Disposal, Recycling, and Reuse

Outcome #9

1. Outcome Measures

Number of applicators successfully maintaining their pesticide applicator certification to legally apply pesticides in the Commonwealth

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	18000	13711

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The federal and state pesticide laws and regulations require pesticide applicators to be certified to use restricted use pesticides. In addition, Virginia law requires all commercial applicators to be certified to use any pesticide. It is mandatory that applicators renew their pesticide licenses through continuing education every two years. Without pesticide safety and integrated pest management (IPM) education to enable these individuals to do so, many would suffer economic hardships and violate the law. A lack of knowledge in pesticide safety and IPM practices threatens human health and the environment.

What has been done

In 2007, agriculture and natural resource Extension agents and specialists for VCE, worked with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board to conduct programs in pesticide safety and IPM throughout Virginia. The programs assisted agricultural producers and licensed pesticide applicators to comply with the law and protect the environment and human health through the safe and efficient use of pesticides and alternative pest control tactics. The program made pesticide safety education mandatory for every Extension agricultural agent and tied the issue of applicators being certified as required by state and federal law to VCE educational programs. One of the most prominent violations by applicators is being cited for not being certified to apply pesticides in Virginia. VCE increased efforts to offer training and to inform the public that certification is mandatory for all commercial and many private (farmers) pesticide applicators in Virginia.

Results

During 2007: 1,975 pesticide applicators were trained for certification through educational workshops and self study of Extension training manuals; 1,858 applicators gained knowledge in pesticide safety and IPM through certification training and passed the state certification exam(s); 1,975 applicators attended programs, which included IPM related topics for selected commodities and/or farms and pest management businesses.
As a result of VCE pesticide safety and IPM education programs, 1,888 applicators successfully obtained pesticide applicator certification to legally apply pesticides in Virginia.
During 2007: 4,797 pesticide applicators (farmers) were trained for recertification; 4,797 applicators gained additional knowledge in pesticide safety and IPM through re certification training and attended programs, which included IPM related topics for selected commodities and/or farms and areas of pest management.
As a result of pesticide safety education and IPM programs, according to state certification statistics, 11,823 applicators successfully maintained their pesticide applicator certification to legally apply pesticides in the Commonwealth. Another 1,888 were added to the total applicators holding certifications in Virginia a total of 13,711.

In addition, VCE promoted awareness and the availability of pesticide safety education and regulatory compliance through the Virginia Tech Pesticide Programs website. The use of that website continued to grow in 2007 with 4,760,323 hits for an estimated 35,000 users.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

403	Waste Disposal, Recycling, and Reuse
213	Weeds Affecting Plants
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
112	Watershed Protection and Management
723	Hazards to Human Health and Safety
211	Insects, Mites, and Other Arthropods Affecting Plants
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
216	Integrated Pest Management Systems

Outcome #10

1. Outcome Measures

Crop acreage impacted by the continued availability of viable pest management tools as a result of pest management strategic planning activities and the communication of pest management information to policymakers

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10000	16000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Food Quality Protection Act (FQPA) impacts all acreage and pest control business employing the use of registered pesticides. USDA and EPA share benefit data for various food and non food crops through the efforts of IPM Centers and states to work with IPM Stakeholders. Without this effort stakeholders and consumers would be impacted by regulatory decisions not based in actual stakeholder feedback and needs. A means to measure that feedback and needs is paramount to implement a transition strategy to allow growers to control pests on their crops effectively.

What has been done

Crop pest profiles (ginseng, honeybees, turfgrass), pest management strategic plans (pepper, potato, honeybees, tomato) and 26 different responses to EPA and USDA requests for input data on needs for various crops involved direct stakeholder input in 2007. This direct input data was published on the USDA Southern IPM Center website. This information was shared with USDA and EPA Benefits Use Division. In addition, direct feedback was given to EPA and USDA directly and specifically for establishment of methyl bromide critical use exemptions for 2008.

Results

As a result of these publications and meetings/contacts with stakeholders associated with the efforts to document priorities and pest management needs, over 10,000 acres were impacted by providing EPA and USDA with important stakeholder feedback on pest management priorities and needs. Policymakers were able to make more informed decisions and producers were able to provide direct input into the process to protect their pest management tools. Crops impacted include: tomato, honeybees, turfgrass, potato, pepper, ginseng, sweet corn, lettuce, peanuts, swine, livestock, tobacco, cucurbits, pecans, cowpeas, grapes and cherries (representing over 10,000 acres impacted). During 2007, there were 26 requests in from USDA/EPA/IPM Centers for stakeholder input to potential changes in regulations that could impact the grower's ability to maintain viable pest management and IPM programs on various high value crops. Stakeholders were contacted and detailed responses were provided to each of the requests, either on behalf of growers or directly from growers as a result of the contacts. The results of an agent survey were published as an IPM Priorities database and made available to the public through the program website. Virginia's IPM stakeholder network was formalized and published on a password protected website to share with USDA and the Southern Region IPM Center. The program actively supported the IR 4 minor crop pest management network through responses to IR 4 for information on minor crop needs and participated in IR 4 programs throughout the year. Extension agents in 90 localities incorporated IR 4 and IPM Center information into Extension programs as a result of attending VCE's workshop on pesticide safety education and pest management in 2006. Contact was initiated with the Mount Rogers Christmas Tree Growers Association in 2007. A working group was established to work on an IPM elements document to benefit growers in marketing and managing their crops (6,000 acres). As a result of work with beekeeper stakeholders, a pest management strategic planning workshop was held in November 2007 that involved beekeepers, state apiarists, researchers and Extension faculty from Virginia, North Carolina, Maryland, West Virginia, Delaware, and Pennsylvania. Information shared through the program website and listserv impacted over 29,000 users (4,760,323 hits) in 2006-07. Meetings with growers and grower groups and other stakeholders resulted in communication of drift management and pest management information to key growers and local citizens. Four quarterly meetings with the state pesticide control board resulted in an increased knowledge of pest management issues and expansion of the IPM stakeholders network for Virginia. Six pest management publications were published in 2006 07 that support pest management decision making and relay grower needs to key stakeholders dealing with pesticide regulation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
211	Insects, Mites, and Other Arthropods Affecting Plants
723	Hazards to Human Health and Safety
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #11

1. Outcome Measures

Potential dollars per acre saved by adoption of new tools for integrated pest management.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Golf course superintendents representing 8% of the industry were surveyed about troublesome weeds. Ninety-two percent identified perennial grass weeds such as nimblewill, bermudagrass, dallisgrass, perennial ryegrass, quackgrass, and creeping bentgrass as the most troublesome species. Although perennial grasses remain a serious problem, numerous attempts by turfgrass scientists in the past 50 years have failed to produce selective herbicides to control these weeds in turfgrass.

What has been done

Over 100 field research trials related to perennial grass weed control were conducted since 2001. It was discovered that mesotrione, a herbicide commonly used in agronomic crops, could safely control such weeds without harming common turfgrass species. Specialists are working with the manufacturer to refine use rates and pursue registration with EPA, expected in 2008.

Results

This herbicide will be the first selective chemical for controlling perennial grass weeds in lawns, sod farms, golf courses, and recreational areas. Use of mesotrione could save Virginia Golf Courses over $5 million in lost golf revenue if just 10% of courses employ its use rather than renovating areas infested with perennial grasses, assuming a typical eight week down time during renovation. By replacing renovation of infested home lawns, mesotrione can save homeowners an estimated 25 human hours and $400 per acre by eliminating the need for subsequent seed establishment after renovation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety
213	Weeds Affecting Plants
112	Watershed Protection and Management
216	Integrated Pest Management Systems

Outcome #12

1. Outcome Measures

Number of pounds of pesticide waste disposed of through a statewide pesticide waste disposal program.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	92097

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The disposal of canceled, banned or unwanted agricultural and commercial pesticides poses a significant challenge to agricultural producers and other pesticide users. Pesticide wastes are a public health and financial threat. Many waste products end up in local waste systems. Since 1990, the Virginia Department of Agriculture and Consumer Services, the Virginia Pesticide Control Board and Virginia Cooperative Extension have worked together to collect and destroy 1,407,415 pounds of pesticide wastes.

What has been done

An inexpensive and efficient solution to disposing of waste products eliminates a potential threat to health and the environment and saves money. To identify and collect pesticide wastes in 2007, Agriculture and Natural Resource Extension agents for Virginia Cooperative Extension, in partnership with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board, conducted a pesticide waste disposal program in 22 Virginia localities. The program(s) helped agricultural producers, licensed pesticide dealers and pest control firms, golf courses, and homeowners properly dispose of unwanted pesticides.

Results

During 2007: 92,097 pounds of waste pesticides were reported to have been collected and disposed of 22 localities through the work of Virginia Extension agents in cooperation with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board; 112 participants who improved the safety of their property and environment by participating in the pesticide waste disposal program; 112 individuals, farms, businesses, and other organizations that positively benefited from the pesticide disposal program by eliminating the costs of disposal themselves and removing potential exposure to toxic wastes; 112 applicators who gained knowledge of how to properly dispose of unwanted pesticide products and wastes.
As a result of the pesticide waste disposal program, pesticide wastes were collected from 112 farms, licensed pesticide dealers and pest control companies, golf courses, and homeowners in 22 southwest counties in Virginia.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
723	Hazards to Human Health and Safety
403	Waste Disposal, Recycling, and Reuse
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc

Outcome #13

1. Outcome Measures

Number of pesticide waste containers recycled as a result of pesticide container recycling programs.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	{No Data Entered}	10300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The disposal of pesticide containers poses a significant challenge to agricultural producers and other pesticide users. Improperly rinsed containers are a public health and financial threat. Many containers end up in local waste systems. Since 1993, the Virginia Department of Agriculture and Consumer Services, the Virginia Pesticide Control Board and Virginia Cooperative Extension worked together to collect and recycle 853,730 plastic pesticide containers.

What has been done

An inexpensive and efficient solution to disposing of containers eliminates a potential threat to health and the environment and saves money. To identify, collect and recycle pesticide containers in 2007, agriculture and natural resource Extension agents for Virginia Cooperative Extension, in partnership with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board, conducted a pesticide container recycling program in 19 localities in Virginia. The program(s) helped agricultural producers, licensed pesticide dealers and pest control firms, golf courses, and homeowners properly recycle waste pesticide containers.

Results

During 2007, 10,300 pesticide containers were collected and disposed of in 19 localities through the work of Virginia Extension Agents in cooperation with the Virginia Department of Agriculture and Consumer Services and the Virginia Pesticide Control Board. Participants improved the safety of their property and environment through cooperation with the pesticide container recycling program. Individuals, farms, businesses, and other organizations that positively benefited from the pesticide container recycling program. As a result of these pesticide container recycling program, 10,300 properly rinsed containers were collected from farms, licensed pesticide dealers and pest control companies, golf courses, and homeowners in 19 localities in Virginia. According to the Virginia Department of Agriculture and Consumer Services, eight pesticide dealers sponsored recycling sites which increased the number of plastic containers recycled statewide to 36,135 (this figure includes those 10,300 containers reported by Extension agents).

4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety
112	Watershed Protection and Management
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
403	Waste Disposal, Recycling, and Reuse
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Appropriations changes
- Populations changes (immigration,new cultural groupings,etc.)
- Other (Stakeholder cooperation)

Brief Explanation

EPA continued to reduce funding for pesticide applicator training programs this year. This is money passed to the states through USDA/CSREES. These funding levels are below FY79 levels and do not provide enough funds to support even a small fraction of the program cost. This severely impacted the program delivery and impact this year, especially the ability to offer certification training to new applicators. Population changes continue to put pressure on the pesticide safety education program to provide training for applicators in Spanish. Not only do resources preclude the ability to make these changes, but liability would be an issue if training were offered to lead to certification, yet workers cannot read pesticide labels due to labels being published by manufacturers in English only.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Case Study
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

Evaluation Results

Evaluation forms were provided to all agents conducting pesticide safety education programs. Not all agents reported using the forms and key parameters (measurements of drift education, personal protective equipment use, and understanding of the need to be certified and comply with pesticide laws and regulations) were included in some impact statements but not all. We did use these data along with data from a state pesticide violations database to measure program impact this year. The impacts, based on these evaluation data, were positive and did include change in attitudes and actions by clientele.

Key Items of Evaluation